

CHESAPEAKE

PSR PHYSICIANS FOR SOCIAL RESPONSIBILITY



October 2, 2014

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Director, Environmental Health Bureau
Prevention and Health Promotion Administration
Maryland Department of Health and Mental Hygiene
201 West Preston Street, Room 327
Baltimore, MD 21201

Dear Dr. Mitchell,

Chesapeake Physicians for Social Responsibility appreciates the opportunity to comment on the MIAEH study, *Potential Public Health Impacts of Natural Gas Development and Production in the Marcellus Shale in Western Maryland*. The report raises serious concerns about groundwater and surface water contamination, air pollution, worker and public exposures to toxins and carcinogens, and the use of trade secrets and non-disclosure agreements by the industry, all of which have significant public health implications, and many which may be severe and/or irreversible.

Our comments on the MIAEH study are designed to inform the work of the Commission and to identify some of the outstanding issues that Maryland should answer before deciding whether to allow unconventional natural gas development and production (UNGDP) in Maryland.

Our comments are as follows:

- 1) MIAEH's study points to the need for a pause in the forward movement of fracking in Maryland.**

- a) The logical public health conclusion flowing from this study would have been to provide a recommendation to halt forward movement on fracking in Maryland until more comprehensive health and “best management practices” data could be collected and analyzed from neighboring states.
- b) However, the MOU between DHMH and the MIAEH team specifically precluded the research team from making this recommendation. As you affirmed at the public meeting in Garrett County on June 28th, 2014, the research team was not permitted to consider this option to delay fracking.
- c) This means that at no point in this process has the medical or public health community been given the opportunity to weigh in on the question of whether UNGDP should be allowed to move forward in Maryland, a question specifically incorporated in the Governor’s original Executive Order that initiated this whole review process.

2) MIAEH’s study confirms that unconventional natural gas development and production (UNGGP) in western Maryland is very likely to be harmful to the health of MD residents.

- a) **In 7 out of 8 areas**, the research team found there would be a high or moderately high likelihood of **negative public health impacts** from UNGDP: on local air quality, the healthcare infrastructure, worker health, and community cohesion (due to increases in crime, traffic, substance abuse, STD’s,), harm to water quality, excessive noise, and cumulative effects from all of the above. **[Table 6-1]**
- b) **Because of the methodology used in calculating risks, it is likely the risks to public health are HIGHER than even stated in the report.** For example, risks to water quality were lowered because two categories (Likelihood and Magnitude/Severity of health effects) were given a low rating of “1” due to absence of data – not presence of data showing no harm—very different. The narrative sections preceding these hazard ratings discuss numerous studies of water contamination, not only from methane, but also from known carcinogens such as arsenic and strontium. Furthermore, the PA DEP has now confirmed over 240 cases of drinking well water contamination, some with serious toxicants. (see attached letter) There may not yet be studies confirming direct health effects, but it is understood that such studies take years to complete. As the authors themselves comment at several places that **“the absence of investigation or peer-reviewed data does not imply the absence of harm” [p.19]**

- c) Health studies on UNGDP are just beginning to appear in the medical literature; most have come out in 2013 and 2014. Part of the delay has been caused by industry deliberately hindering access to information. **Nonetheless, what this early research is telling us is that we need to put the brakes on the *spread of this technology while scientists catch up and study effects in places where drilling is already under way.***

3) Many of the potential impacts may be severe and/or irreversible

- a) **Increases in congenital heart defects (CHD) and neural tube defects (NTD)** have been found in babies born to mothers living closer to wells [McKenzie 2014 study].
- b) **Increases in Low Birth Weight (LBW)** are also seen in some studies. While not yet published in official peer-reviewed journals, the work of Elaine Hill, Ph.D. shows very concerning associations. We urge you to contact her if you have not already.
- c) **Occupational silica exposures** have been measured at levels far exceeding safe standards. This is known to cause **silicosis and lung cancer, among other ailments. Importantly, these risks may carry over to neighboring communities and not be limited to occupational exposures, as Si dust travels airborne** (“People living, working, or attending school near and downwind of a well pad would be at high risk of exposure. Because respirable crystalline silica particles are very small and remain airborne indefinitely in outdoor air, they can travel from well pads to nearby communities where they may disproportionately affect vulnerable populations such as children, the elderly, asthmatics and individuals living with chronic obstructive pulmonary diseases (COPDs).”)[p.29]
- d) **Many of the chemicals used are endocrine-disruptors, which can have profound health effects at very low doses, including on child development and IQ.** There was very little mention of this health-risk in the study, despite the issue of endocrine disruptors being raised by the health advocates at public meetings. [endocrinedisruption.org/Dr. Theo Colborn]
- e) **Traffic fatalities and injuries are high**
 - i) “Texas DOT noted a 40% increase in reported fatal motor vehicle accidents from 2008 to 2011 in 20 counties with UNGDP operations” [p.63]
 - ii) “The Oilfield Exemption from highway safety rules allows truck operators to work extended hours without sleep. This creates a dangerous situation with

sleep deprived operators driving their vehicles at high speed through rural roads that are not designed to handle such heavy traffic” [p.95]

4) There is insufficient data to guide best practices – *we don’t really know how to protect ourselves*

a) **“neither the industry, nor government agencies, nor other researchers have ever documented that UCG can be performed in a manner that minimizes risks to human health” [excerpt from letter that Dr. Paulson wrote to PA DEP in June 2014]**

b) “Maryland should base setback regulations on best available science.”[p. 86] ***–yet there is no science yet to help determine appropriate setbacks***

i) Drinking water supplies are at risk (“there is consistency in the literature that wells within less than 1 km of drill sites are likely to be impaired”) AND (“questions remain...whether feasible technologies exist to reverse groundwater impacts that may later be determined to have arisen as a result of fracturing activities”)[p. xxi] Additional studies show water well contamination within a 3 km range (1-3 km equals 3280-9842 feet) ***This suggests that the minimal setback distance of 2000 ft [R.14] recommended in the context of air pollution is not likely to be adequately protective. The second quote is of critical importance, as emphasis in the study recommendations seems to be directed toward “monitoring” and “study” here in MD -- there is limited value to “monitoring” if negative impacts can’t be reversed.***

ii) Air pollution is one of the primary sources of health risk, yet the recommendations are unlikely to be adequately protective in this context as well. Studies cited above and in the MIAEH report reference increased risk for birth defects and LBW over a mile away, so again, the 2000 ft setback offers no assurance that these risks will be avoided.

c) “UNGGP in Maryland should not be permitted until an adequate means of disposal of any residual waste, without extensive trucking, is identified.” [p. 93] ***Waste disposal in MD is an unresolved issue that is being quietly ignored....and these wastes are often radioactive.***

d) Dr. Ingrassia’s most recent study on leakage rates in PA is absolutely crucial to the argument that we don’t know how to protect ourselves [PNAS study, May 2014]. ***Industry doesn’t know how to solve this problem. How can MD regulators?***

- i) There is a **SIX-FOLD higher incidence** of cement and/or casing issues for unconventional shale gas wells compared to conventional wells
- ii) Unconventional gas wells in NE PA built since 2009 show a **9% rate of 'loss of structural integrity' – they LEAK**. This refutes the industry arguments that they are getting better at making safe wells.
- iii) The cumulative hazard risk for unconventional wells in NE PA is predicted to increase to upwards of 40% by 7 years out!

5) The industry has a history of secrecy, dishonesty, and obstruction of reasonable regulations that is detrimental to public health

- a) **Industry claims that no wells have been contaminated are false.** Per Ingraffea's paper above, there are 90 private water supplies in PA that have been confirmed damaged due to subsurface gas migration. At the end of August 2014, as mentioned earlier, PADEP finally made public **243 cases of well water contamination** (2008-2014) from oil & gas drilling and related activities.
[<http://online.wsj.com/article/AP16a162b66b5946d0837c7395cab7a5f4.html>]
- b) **Industry non-disclosure agreements complicate public efforts to get complete numbers and information about harms that have already occurred.**
- c) **Statements that 'only 1% of fluids used in fracking are chemicals' are intentionally misleading** ("even if only .8% of the total volumes are additives, this amounts to 340,000 gallons of chemicals used per well pad, a single point source" and "if a chemical is highly toxic, even exposures to small amounts can be detrimental to human health") [p.23]
- d) **The gutting of federal regulations is largely unknown to the broader public (ex. Halliburton Loophole in 2005 Energy Bill).** The MIAEH study provides a good discussion of the regulatory environment; however, the public needs to know and understand this concept more clearly: **most regulatory burdens are on the state agencies now, which are understaffed and underfunded for this regulatory responsibility.**
- e) **The MIAEH categorically rejects the Maryland Department of the Environment's position on trade secrets and MDE's failure to support the provisions of HB1030** that would allow rapid access by health care providers, emergency responders, health officials and researchers to information on the chemicals used in hydraulic fracturing. This study should cause MDE to reconsider its best management practice that would make it very difficult for health

professionals and the public to challenge trade secret determinations and that could result in medical and health professionals being barred by non-disclosure agreements from speaking about their concerns to the public.

- f) **Some companies are trying to pay residents off ahead of time to release them from future liability for health and other damages.** This is another tool that industry uses to impede the ability of regulatory agencies and the public from understanding the extent of harm caused by fracking.

[http://www.propublica.org/article/aggressive-tactic-on-the-fracking-front?utm_source=et&utm_medium=email&utm_campaign=dailynewsletter—EQT offered households in Finleyville \$50K cash for broad release from present and future liability for a wide range of activities]

- g) **The Fryzek study, funded by ANGA [p. 37], illustrates the levels of dishonesty which this industry is willing to adopt.**

6) Significant gaps remain that were not addressed by the MIAEH study. While we understand the constraints in funding, time, and scope that were placed on the MIAEH team, these topics need to be addressed before any consideration is given to allowing UNGDP to proceed in Maryland

- a) **Assessment of potential risks to food supply** – production animals, wild animals, vegetables [see Drs. Bamberger and Oswald work]
- b) **Assessment of risks under “upset conditions”** – a euphemism for conditions like explosions or massive leaks of chemicals into water supplies as occurred in West Virginia
- c) **Assessment of funding sources for implementation of recommendations,** including increased staffing levels at the agencies that will bear responsibility for oversight, both at state and local levels
- d) **A publicly-accessible GIS mapping system** to show effects of proposed setbacks, location of vulnerable populations and assets, and other information necessary for a well-informed public
- e) **Assessment of costs to the health care systems and emergency response systems.** This would include a discussion of health care insurance requirements, transportability, and any restrictions that could impact reimbursements.
- f) **A more robust set of recommendations regarding waste storage and disposal.** The recommendation against the use injection wells is good, but what WILL

Maryland require for storage and disposal of toxic and potentially radioactive waste?

- g) **Mechanisms for public reporting of problems as they arise**
- h) **Assessment of risks from related UNGDP infrastructure**, like compressor stations and pipelines, which will affect counties outside Garrett and Allegany
- i) **Assessment of risks to the health of the rest of Marylanders** when shale deposits in other counties become accessible to industry
- j) **A more thorough assessment or discussion of earthquake risks from fracking itself (not injection wells)**, given the older buildings in western MD and the lack of construction designed to meet earthquake standards, unlike California. While immediate health risks may be low, there is limited experience over time with the use of multiple wells with horizontal laterals in close proximity or with refracturing techniques. At a minimum, homeowners and business owners may incur additional stresses and costs from structural damage that will not be covered by insurance...and may not be affordable to them.
- k) **Monitoring of the existing gas storage facility at Accident, MD (Spectra Energy)**, which was not even mentioned or displayed on the maps in study.
- l) **An assessment of whether and how weather events of increasing severity might alter the risks of UNGDP.**
- m) **A qualitative assessment of how UNGDP will impact Maryland's present and future requirements to cut greenhouse gas emissions.** The decision to omit climate change from the MIAEH report was particularly troubling to Chesapeake PSR, which recognizes climate change as one of the two greatest threats to public health.

- i) There was a very real need for an acknowledgement that moving forward with UNGDP in MD would add methane, carbon dioxide, and other greenhouse gases to the atmosphere at a point in time when climate scientists are telling us this must stop. The old narrative that natural gas could serve as a bridge fuel to renewables is rapidly being discredited, as current studies are showing that natural gas is likely as harmful, or perhaps more harmful, to climate than other fossil fuels in the 20-year time frame due to fugitive methane leakage, which cannot realistically be eliminated.
- ii) To give one example of the direct connection to UNGDP, very little is known about the long-term effectiveness of well-decommissioning. As discussed in the Nova Scotia Independent Panel Report on Hydraulic Fracturing in August 2014, "The sealing materials used in closing off wells may degrade over future decades, raising the prospect of an unknown number of abandoned wells discharging some levels of methane into the atmosphere -- this could result in (currently unquantifiable) future environmental impacts." Most importantly, allowing

UNGGP to begin in Maryland commits us to decades of additional fossil fuel infrastructure at a time when we need to be weaning ourselves off fossil fuels as quickly as possible. It distracts us from allocating appropriate resources to efficiency improvements, conservation methods, and renewable energy development. Climate scientists are stating clearly that we must leave 80% or more of existing fossil fuel reserves in the ground in order to attempt to avert the most devastating effects of climate change. **So any public health study that implies that a new extractive fossil fuel infrastructure can be added without “unacceptable risks of adverse impacts to public health, safety, the environment and natural resources” is simply missing the big picture.**

In conclusion, after reviewing the MIAEH report in great detail, we believe there is no reason to put the health of MD residents at risk at this time. We know that:

- 1) More comprehensive health studies are underway in neighboring states. Maryland should not move forward without benefit of this information.
- 2) The RESI economic study failed to credibly show significant net economic benefit to MD, raising the question “Why accept ANY risk?”
- 3) Newer geologic information suggests recoverable gas supplies in U.S. are likely less than previously believed. There is no “100-year supply”; it is more likely to be a 20-30 year supply at best, less if exports begin. **The “boom phase” of UNGGP, if there is one at all in Maryland, is likely to be short (less than 10 years), while health and environmental impacts are very long-lasting and may extend into future generations.**

Thank you for the opportunity to provide comments on the MIAEH health study. Given that the MIAEH team was precluded from addressing the “whether or when” questions related to UNGGP in Maryland, we hope that there will be a mechanism going forward for the medical and public health communities to weigh in on those critical questions.

Respectfully submitted,

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