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Environmental Health Bureau
Marcellus Shale Comments
Maryland Department of Health and Mental Hygiene
201 W. Preston Street, Room 327
Baltimore, MD 21201

Comments on the MIAEH public health study

The Maryland Institute for Applied Environmental Health offers stern warnings for our state should we decide to proceed with hydraulic fracking any time soon. Although 52 recommendations are included that might ameliorate some of the worst consequences, they should in no way lull us into thinking this process can be made safe for Marylanders.

I represent Howard County Climate Change, an all-volunteer organization of more than 1,000 members. Following are our key concerns:

1) **Scorecards:** One key concern with the scorecards is that the "moderately high" hazard ranking for cumulative exposure and water quality masks a much greater level of possible harm:

Cumulative Exposure

Evaluation Criteria	Score
Vulnerable populations	2
Duration of exposure	3
Frequency of exposure	2
Likelihood of health effects	2
Magnitude/severity of health effects	1
Geographic extent	2
Effectiveness of Setback	2
Overall Score	14
Hazard Rank	M

Production/Flowback Water Related Issues*

Evaluation Criteria	Score
Vulnerable populations	2
Duration of exposure	3
Frequency of exposure	2
Likelihood of health effects	1
Magnitude/severity of health effects	1
Geographic extent	2
Effectiveness of Setback	2
Overall Score	13
Hazard Rank	M

**Hazard rank predominantly driven by water quality issues*

These scorecards would have been in the "high" risk, red zone if the 1s had been 2s. And in both cases the only reason for the score of 1 for likelihood and magnitude of effects was that "evidence regarding the magnitude/severity of health effect could not be determined because of insufficient data." These categories, with their promise of merely "moderately high" risk, offer a small measure of comfort where none is warranted. Of course, as Dr. Donald Milton pointed out at the recent shale advisory meeting: "That stuff in the middle [moderately high, yellow] is still important stuff. It's not stuff to ignore." But if ongoing and future research were to determine that the likelihood or magnitude of harms in these areas is higher, these two

areas of concern would receive a hazard rank of High/Red, and the overall chart below would be in the RED zone for all but two categories:

Topic	Likelihood of Negative Public Health Impact
Air Quality	High
Healthcare Infrastructure	High
Occupational Health	High
Social Determinants of Health	High
Cumulative Exposures/Risks	Moderately High
Flowback and Production Water-Related	Moderately High
Noise	Moderately High
Earthquakes	Low

High = high likelihood of negative health impacts, Moderately High = moderately high likelihood of negative health impacts, Low = low likelihood of negative health impacts

Also, the risk of harm from earthquakes is low only because Maryland so far has no plans to allow the underground injection of hazardous wastewater. That could change, as MDE has indicated it would consider applications for injection wells. Also, exporting the waste to another state with more lax regulations regarding injection, landfilling or incinerating raises environmental justice concerns. We should not cavalierly ignore harms we plan to outsource to citizens in other, more accommodating states. Bottom line: Industry has so far failed to come up with a safe way to dispose of this toxic and radioactive waste.

2) **Climate:** We understand that MIAEH was not charged with evaluating the climate implications of fracking in Maryland. This is a huge gap. Studies show methane, a far more potent greenhouse gas than CO2, leaking at rates of 2 percent to as much as 9 percent at the drilling site. Unless the leakage rate is kept below 2 percent, fracked gas offers no improvement over coal for the climate.
   Plus, increased fracking will require more pipelines and compressor stations, which also leak methane. A recent study published in the journal *Environmental Research Letters* concluded that switching from coal to fracked gas will increase consumption, leave dangerous greenhouse gas emissions about the same and depress the production of renewable energy, which is precisely what we want to encourage. Maryland should assess this fracking's effects on climate and on renewables before proceeding.

3) **The 52 recommendations.** This list speaks volumes about the threats from this industry that won't easily be controlled. Many of the recommendations are unfunded or require area residents to police the industry. We find that unacceptable.
   R1: Who will conduct and pay for these assessments of air quality and potential health effects?
   R2: Who will assess whether the setbacks for well pads are sufficient? Studies have not been done to determine what setback is safe. And nothing will put diesel trucks at a safe distance. The roads can't be moved.
   R14: Although you recommend 2,000-foot setbacks to protect air quality, no research shows this sufficiently protects public health.
   R19: Who will pay for this air monitoring? (But thank you for including that peak exposures should be measured as well as chronic.) R19 e: What does that mean? What expectations should community members have?
   R24: Who will conduct and pay for the soil monitoring?
   R25: Thank you for recommending that wastewater not be used as dust suppressant or ice melt or spread on land. That has been done elsewhere, with devastating results for pets, wildlife and vegetation.
   R26: Who will conduct research on radionuclides? Who will pay for it?
   R33: Who will pay for the increased state and local highway patrols?
   R38: You suggest that local communities monitor and ensure compliance with setbacks. That's a huge burden to impose on local residents. Of course, this is done in the Wild, Wild West of Pennsylvania. We know of at least one instance in which industry had placed the edge of a drill pad about 120 feet too close to a neighboring property. The property owner asked that the edge of disturbance be moved back. The drilling company offered cash instead and, if the water became contaminated, six months of water. The property owner refused. This is what companies will try to do.
   R39: These maps are an excellent idea. Who will pay for this?
   R42: Who will pay to train emergency and medical personnel?
   R18, R29, R41, R44: So many committees, so little time.
   R46: You recommend a birth outcomes surveillance system. As you know, mothers' proximity to fracking operations has been associated with underweight and deformed babies. Keeping a count of these babies is not enough. Those families and the community will pay for a lifetime of care for these children, thus socializing the costs while privatizing the profit. Industry profit should not trump the well-being of children in Maryland. And these families have not given consent for this experiment.
   R47: You recommend a long-term study of dermal, mucosal and respiratory irritation. Again, these people have not given consent to being guinea pigs in this ongoing experiment.

R48: You suggest that someone develop a funding mechanism for public health studies. Is that like: First, find a million dollars? Who is to do this? What is the source of the money? (Tax revenues from drilling aren't collected until the gas is in production.)
R49-R52. One of the biggest draws of fracking has been the alleged job creation. And yet we see from studies and reports that these are dangerous jobs (usually given to nonresidents). Truck accidents are frequent, silica exposure is a concern, and more. A new report shows employees aren't even being paid adequately: A ProPublica review of U.S. Department of Labor investigations shows that oil and gas workers – men and women often performing high-risk jobs – are routinely being underpaid, and the companies hiring them often are using accounting techniques to deny workers benefits such as medical leave or unemployment insurance.
http://www.propublica.org/article/for-oil-and-gas-companies-rigging-seems-to-involve-wages-too

4) **Toxic chemicals/nondisclosure agreements**: We applaud your call for full disclosure of all toxic chemicals and their amounts and combinations. In addition, Dr. Donald Milton said at the last shale advisory meeting that the report inadvertently left out a statement that nondisclosure agreements between industry and harmed property owners "should be strictly illegal." Leaving that out "was probably an oversight on our part," he said. We hope you can make that clear to the commission and policy makers.

5) **Failure to definitively protect public health:** While we applaud MIAEH researchers for their difficult and extensive work for this report, we would like to have seen a more strenuous and urgent call for more research and evaluation before a decision is made to allow fracking in Maryland. Even though such a call was not part of your charge, we think it is your obligation to speak forcefully to protect the health of Marylanders.

   So much is unknown, and what we do know is increasingly alarming. Research on this industry is in its infancy, with many studies in the pipeline. After the release of the report, in fact, Yale researchers released a study about health problems for people near fracking sites: "Reports of skin conditions were more common in households less than 1 kilometer from gas wells compared to those more than 2 kilometers from the gas wells. Reported upper respiratory symptoms also were greater in homes closer to wells. The study did not find a significant increase in grouped neurological, cardiovascular, or gastrointestinal symptoms among those living in homes closer to natural gas wells."
   http://news.yale.edu/2014/09/10/more-health-symptoms-reported-near-fracking-natural-gas-extraction#.VCqdFGeA5CQ.facebook
   http://ehp.niehs.nih.gov/wp-content/uploads/advpub/2014/9/ehp.1307732.pdf
   Another study, reported today (Oct. 2) but not yet published, indicates that "an increasing number of wells is significantly correlated with inpatient rates of

hospitalization." http://citizensvoice.com/news/study-more-gas-wells-in-area-leads-to-more-hospitalizations-1.1763826
Unfortunately, too many states have rushed headlong, turning their citizens into guinea pigs and carving up forests and farmland with little regard for long-term consequences.

As you know, public health experts at last month's Baltimore symposium organized by the Maryland Environmental Health Network reviewed the health report. They concluded: "As public health professionals whose responsibility is protecting the health of all Marylanders, we should not pretend that we'll know what to do in the next couple of years — we acknowledge that it may take 10 years or more to fully understand the health ramifications of hydro fracturing, and importantly, how to mitigate the health risks associated" with unconventional shale gas production."
https://mdehndotorg.files.wordpress.com/2014/08/sept_12_symposium_report.pdf
If you concur, we hope you will make that clear to the commission and policymakers.

When the medical community and public health experts remain silent, detached or neutral, the voice of industry will prevail and arbitrary deadlines will be imposed. We want to avoid that outcome in Maryland. Residents should not be in the position of having to prove that this industrial practice is unsafe. Absent evidence of safety, MIAEH should insist that the precautionary principle be heeded.

Sincerely,
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