

DATE: October 3, 2014

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TO: Environmental Health Bureau, Marcellus Shale Comments

Maryland Department of Health and Mental Hygiene

201 W. Preston Street, Room 327

Baltimore, MD 21201

Email: dhmh.envhealth@maryland.gov

RE: Public Comments on FINAL Report: Potential Public Health Impacts Of Natural Gas Development And Production In The Marcellus Shale In Western Maryland

INTRODUCTION

Maryland Children's Environmental Health Coalition (MD CEHC) is a group of children's advocates working collaboratively toward improving the lives of children. Our coalition works to support and advocate for laws that address children's environmental health and well-being. MD CEHC recognizes the urgent need to address the growing issues surrounding the environment where our children live, play, and attend school. We are specifically concerned about protecting children from known hazards, and preventing new hazards, thus allowing our children to reach their full potential as contributing members of society.

Our Coalition thanks the Maryland Institute for Applied Environmental Health for the extensive documentation of stakeholder concerns, and for the 52 recommendations offered in the study of health impacts from Marcellus Shale drilling in Western Maryland. We understand that this report is a direct outcome of Executive Order 01.01.2011.11¹, which established the Marcellus Shale Safe Drilling Initiative and that the purpose of the study is to "assess potential health impacts to inform decisions about whether to permit Unconventional Natural Gas Development and Production (UNGDP) in Maryland"² and "make recommendations to limit negative health impacts if the State decides to permit UNGDP". We have reviewed the study and concur with its findings as well as with the recommendations from Maryland Policy-makers raised by the panel of experts who reviewed the study at the September 12, 2014 Symposium.

We understand that the purpose of the Initiative is to assist regulators in determining whether and how gas production from the Marcellus Shale and other shale formations in Maryland can be accomplished **without unacceptable risks of adverse impacts to public health, safety, the environment, and natural resources**. We are concerned that the final report and its recommendations "will merely **estimate**, to the **extent possible**, the health impacts of policy options by comparison with not allowing expanded natural gas extraction."³ Is this enough, or can we do more?

WHY CHILDREN NEED PROTECTION – unacceptable risks

Children's small developing bodies cannot always process or tolerate the chemicals that we as adults encounter in our every day lives. This is especially true for certain known toxins and carcinogens as well as unknown toxins hidden in products they use, foods they consume, soil that they play on, homes they live in, schools they attend and in the water that they drink. We know that "most groundwater contamination comes from sources within one mile"⁴ of a well used for drinking water in children's homes, schools, day care centers, etc. There is much that is still unknown regarding the impact of OSHA-defined hazardous chemicals on growing children. Therefore, safety mechanisms must be put into place to protect children from unnecessary and potentially harmful exposure.

One population that clearly did not have an opportunity to provide comment for this initiative is children. Their voice has not yet been heard, yet they will inherit and be responsible for any outcomes - both good and bad - that result from Maryland's decision on gas production from Marcellus Shale. Since children cannot speak for themselves and represent their own interests in such complex considerations as this, we would ask the health study team: Have you spoken to teachers, school administrators, parents (especially of children with asthma, other illnesses or special needs children), and school nurses? Have you spoken to child care providers, pediatricians and obstetricians currently practicing, kids' sports team coaches and recreation facility program managers? Have you engaged high school and college students? Have you engaged those who are trained in early childhood education and development? The points of view of these stakeholders are critical given the special vulnerability of children and their inability to speak for themselves.

Additionally, existing state-mandated advisory boards such as the Children's Environmental Health and Protection Advisory Council [CEHPAC] or the Commission on Environmental Justice and Sustainable Communities [CEJSC] should be included in public health discussions. CEHPAC's purpose is to identify environmental hazards that may affect children's health and to recommend solutions to those hazards. The CEJSC is tasked with examining issues of environmental justice and sustainable communities that may be associated with creating healthy, safe, economically vibrant, environmentally sound communities for all Marylanders in a manner that allows for democratic processes and community involvement.

For more information please contact: Pam Wallentiny, MD CEHC Executive Director
Veronika Carella, MD CEHC Legislative Director
Mailing address: MD CEHC, P.O. Box 97, Glenwood, Maryland 21738

email: Pamela.Wallentiny@mdcehc.org
email: Veronika.Carella@mdcehc.org
url: www.mdcehc.org

SCOPE and MONITORING

The public health impact and scope must go beyond monitoring for adverse impacts. **Monitoring for an adverse impact does not ensure safety.** The report must address result criteria to ensure schools, homes, community and public areas are safe, nurturing environments that are **free of known hazards before, during and after the gas production.** Every effort must be taken to protect air, soil, drinking wells, ground and surface water – especially in areas where children are dependent on ground water for drinking water in their homes and schools.

It is not clear whether the **setbacks** referenced in the Report are sufficient or adequate to protect locations where children spend their time such as schools, parks, recreation areas, communities, nor if their 'food-shed' needs protection as well. The setbacks (e.g. 2000 feet) mentioned are similar for noise or air and do not appear to show evidence that these distances are sufficient to shield children from exposure to hazards or toxins, nor what science this distance is based on. No mention is made of what conditions exist that might impact a setback, such as the slope of the land, the air-patterns, varying conditions during the gas drilling and extraction process. There does not appear to be sufficient science or evidence of the effectiveness of a 2000 foot setback. What is a safe setback and from what point is the setback measured – property line, home, etc.?

Once an **adverse event** has taken place, it cannot always be remedied – therefore Maryland must establish preventive safety and protective measures that will be mandated and strictly enforced prior to any gas production. **Effective selection of monitoring is not sufficient to ensure the protections** needed before a decision can be made to proceed with gas production from Marcellus Shale in Maryland. Maryland's primary responsibility is to protect our future - our children and their environment - from unnecessary harm by working to eliminate potential exposures and protect the natural environment including air, water and soil.

RECOMMENDATIONS and COMMENTS

We request that the Maryland not proceed with natural gas development and production in the Marcellus Shale in Western Maryland until additional health studies are completed that either fully examines the risks for children, or that clearly state specific aspects of children's vulnerability that were beyond this report's scope and make recommendations about how these issues can be fully assessed and addressed. If protection cannot be ensured due to gaps in existing data (including seriously lacking toxicology data) then the must state proceed under the precautionary principal and first do no harm, even if that means **delaying development and production of natural gas in Maryland.**

Our Coalition asks that greater focus be placed on children as a vulnerable population. The potential for schools, child care facilities, community and recreational facilities to be sited near shale gas operations is a serious concern. The exposure of children to volatile organic compounds, smog, and other airborne toxics generated by hydraulic fracturing operations would carry significantly different, and usually greater, risks than the exposure of adults. Likewise, the impact on children of noise and light pollution, exposure to contaminated water, or increases in traffic exhaust will be different than for adults.

While the Report refers to children as a vulnerable population, it does not indicate that significant attention will be paid to the risks for children or actions taken to specifically protect children and other sensitive populations including pregnant women, the elderly and those with already compromised health. Nor does it acknowledge the potential for delayed impact over time, as children have a longer time to live and therefore more time to react to toxins and hazards they come in contact with during their critical developmental years. Again, are this Report's 52 recommendations enough, or can we do more?

Our Coalition asks that the health study be utilized to review and improve Maryland's Best Management Practices [BMP] for natural gas development and production in Western Maryland. The 'Fracking' Commission proposed BMPs prior to the release of the Health Study, therefore the proposed practices cannot possibly address BMP based on public health and the environment. Publishing BMPs prior to reviewing the Health Study implies that the BMP policies ensure the most economical practice, rather than the healthiest or safest practice. What evidence is there that the BMPs proposed by the commission will actually ensure protection for people or their communities? How do we know they are the best? Have they been tested and studied? What are they based on? Do they work to protect human health and the environment?

Our Coalitions ask that Maryland implement checks and balances to ensure sufficient oversight during the entire life-cycle of development and production of natural gas. Currently, even for such critical decisions as Federal Permits for UIC (Underground Injection Control) Permits [refer to 40 CFR parts 124, 144 and 146] which are required for all Class I, II, and III wells, and some Class V wells, the EPA states entities "that have delegated programs have permit requirements that vary by jurisdiction and well type. **Injection well owners are responsible for determining all applicable requirements**"⁵ Who is watching the well owners? Where is the oversight? What are the checks and balances? Is our water protected?

Our Coalition asks that Maryland implement stricter controls and protection of our water based on the Health Study prior to any development and production of natural gas in Maryland. Our Federal, State and Local laws and regulations have not yet caught up with this industry and in fact allows this industry to bypass certain laws specifically designed to protect public health and the environment – as noted in the Health Study. Federal and State Agencies need time to establish laws and regulations to protect us and our natural resources.

The US Environmental Protection Agency [EPA] is undertaking a national study to understand the potential impacts of hydraulic fracturing on drinking water resources. The study will include a review of published literature, analysis of existing data, scenario evaluation and modeling, laboratory studies, and case studies. **EPA's study of hydraulic fracturing and its potential impact on drinking water resources is still in underway.**⁶ It is also only looking at 'existing data'. The EPA does not have all the data especially with regard to toxicology or cumulative impacts. There are known data gaps. Critical results are not scheduled to be reported until sometime in 2014 and will not address these data gaps. Maryland should not move forward until this EPA study is done and the findings are reviewed and acted upon.

Maryland must address the same areas covered in the scope of the EPA Study. Some critical sections of the EPA Study⁷ include page 11 of document shown here;

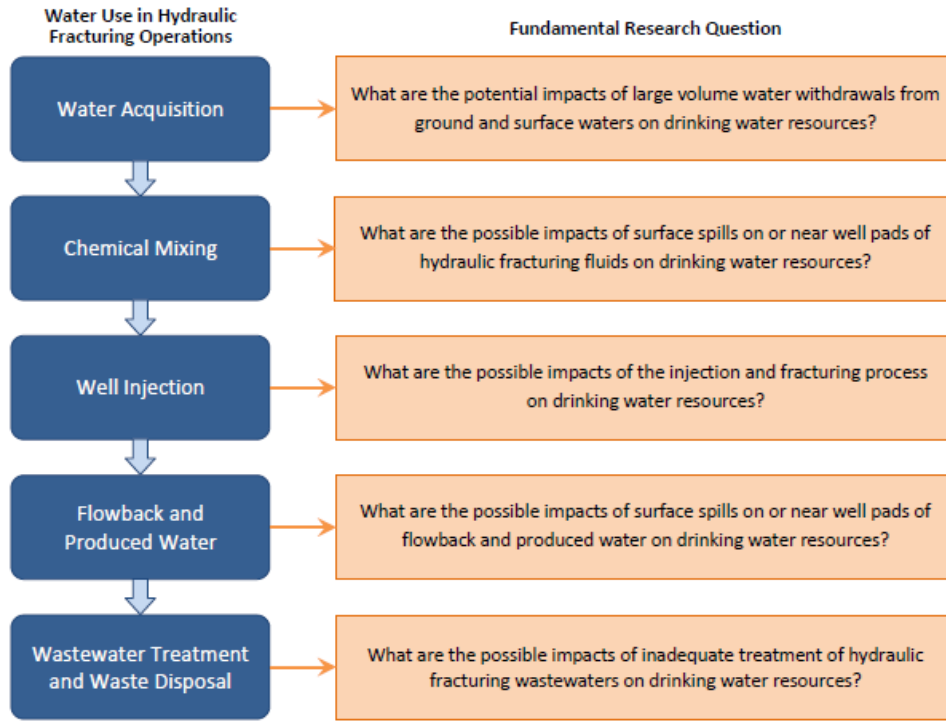
The EPA study is designed to provide decision-makers and the public with answers to the five fundamental questions associated with the hydraulic fracturing water lifecycle:

- Water Acquisition: What are the potential impacts of large volume water withdrawals from ground and surface waters on drinking water resources?
- Chemical Mixing: What are the possible impacts of surface spills on or near well pads of hydraulic fracturing fluids on drinking water resources?
- Well Injection: What are the possible impacts of the injection and fracturing process on drinking water resources?
- Flowback and Produced Water: What are the possible impacts of surface spills on or near well pads of flowback and produced water on drinking water resources?
- Wastewater Treatment and Waste Disposal: What are the possible impacts of inadequate treatment of hydraulic fracturing wastewaters on drinking water resources?

Additionally page 12⁸ raises concerns over data gaps with regard to toxicological assessments as shown here;

Toxicological assessments of chemicals of potential concern will be based primarily on a review of available health effects data. The substances to be investigated include chemicals used in hydraulic fracturing fluids, their degradates and/or reaction products, and naturally occurring substances that may be released or mobilized as a result of hydraulic fracturing. It is not the intent of this study to conduct a complete health assessment of these substances. Where data on chemicals of potential concern are limited, however, quantitative structure-activity relationships—and other approaches—may be used to assess toxicity.

Have we completed our review of the water used in hydraulic fracturing operations? As noted in these charts from page 15⁹, the EPA raises fundamental questions that Maryland too must answer prior to proceeding.



1. FUNDAMENTAL RESEARCH QUESTIONS POSED FOR EACH IDENTIFIED STAGE

Later on page 33¹⁰ the EPA expands the review to potential drinking water impacts. Maryland must do the same!

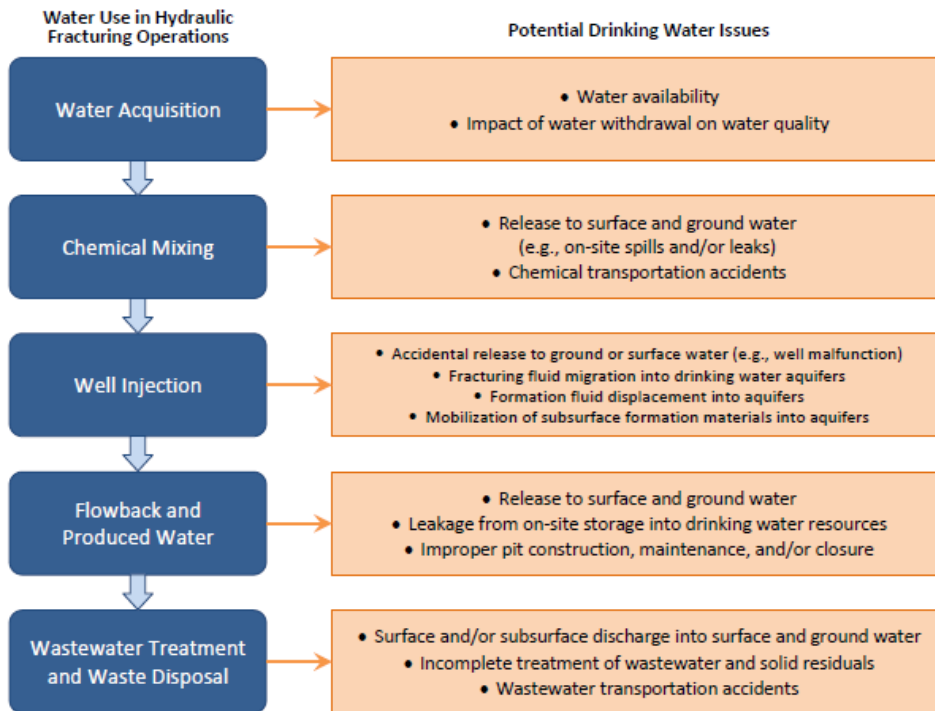


FIGURE 9. WATER USE AND POTENTIAL CONCERNS IN HYDRAULIC FRACTURING OPERATIONS

Finally, it should be noted that much of the information that the EPA is studying is not expected to be released until sometime in 2014 (refer to diagrams below¹¹). How can Maryland proceed without a review of the EPA's results??? Maryland must wait and base its decisions on sound science and research. Again, Federal, State, and Local agencies must have an opportunity to implement laws and regulations to protect public health and the environment PRIOR to Maryland moving forward on this initiative.

EPA Hydraulic Fracturing Study Plan

November 2011

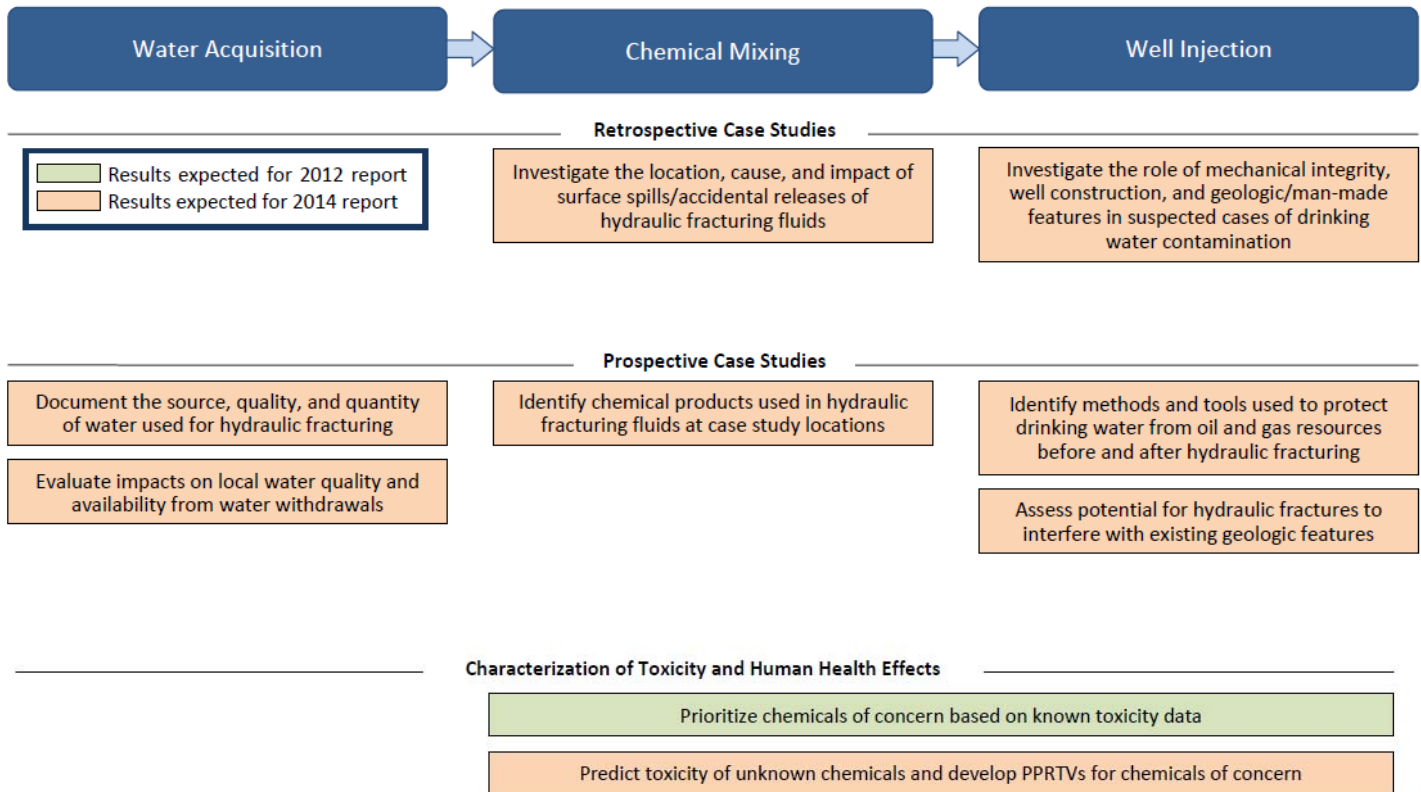


FIGURE 10B. SUMMARY OF RESEARCH PROJECTS PROPOSED FOR THE FIRST THREE STAGES OF THE HYDRAULIC FRACTURING WATER LIFECYCLE

CONCLUSION

Maryland has a responsibility to ensure that any such probable hazardous activities do not result in a menace to public health, safety, security, or general welfare, or result in dangerous conditions, or jeopardize the lives or property of people living in area where gas production takes place or is potentially impacted by gas production. Maryland must ensure that the proper laws, regulations and protections are in place – as currently they are insufficient (refer to **EXHIBIT A** – Summary of Oil and Natural Gas Regulations Related to Waste Pits at Hydraulic Fracturing Sites in Maryland as of April 2014).

The Marcellus Shale Safe Drilling Initiative can ensure that children can live, play and learn in a safe environment that will not compromise their health and well-being and allow them to live up to their full potential as contributing citizens of Maryland. We hope that the Maryland acts favorably on our recommendations and comments.

We sincerely thank the Maryland Institute for Applied Environmental Health for the opportunity to comment on the FINAL Report and look forward to your response to this correspondence.

CC: Maryland Children's Environmental Health and Protection Advisory Council, email: Rachel.Hess-Mutinda@maryland.gov
 Maryland Commission on Environmental Justice and Sustainable Communities, email: Lisa.Nissley@maryland.gov
 MD CEHCoalition Steering Committee, email: Steering.Committee@mdcehc.org

Review of State Oil and Natural Gas Exploration, Development, and Production (E&P) Solid Waste Management Regulations

Patrick M. Kelly, P.E.
Environmental Engineer, Office of Resource Conservation and Recovery

April 1, 2014

"The following are summaries of state regulatory programs of oil and natural gas exploration, development, and production (E&P) solid waste management. This review was conducted by EPA personnel in the Office of Resource Conservation and Recovery (ORCR) within the Office of Solid Waste and Emergency Response (OSWER) between March 2013 and July 2013. EPA also followed up with each state in February and March 2014 to ensure that any changes in the interim were reflected in the summaries. The review reflects state regulations of oil and gas E&P solid wastes at the time of the review, current through February-March 2014. It should be noted that state regulations are updated with varying frequency and subsequently may change as state oil and natural gas programs and policy evolve."

Appendix MD-2

Summary of Oil and Natural Gas Regulations Related to Waste Pits at Hydraulic Fracturing Sites Maryland

- Regulations regarding technical requirements for waste pits are found primarily in the **Code of Maryland Regulations, Title 26, Subtitle 19**, as regulated by the Maryland Department of the Environment, Division of Solid Waste. Additional regulations can be found in the **Annotated Code of Maryland, Title 14, and Title 5**.
- CMR 26.19.01.06 specifies the criteria that must be met for the issuance of a drilling permit, including bonding, pit design and reclamation plans.
 - 20.19.01.10 details design criteria of storage facilities, which includes:
 - Capacity to contain all liquid and solid waste during all drilling and completion activities to include emergency overflow storage
 - Prohibition against discharge into surface waters
 - Impermeability
 - Diversion of surface runoff
- § 14-108 details denial of permit and bond and disposal of well products in areas that will adversely affect wildlife
- § 5-1702 of the Annotated Code details assessments of the effects on the environment of drilling operations and production including the possibility of accidental discharge of oil or gas and recommendations for minimizing any adverse economic, fiscal, or environmental impacts
- Complete regulations concerning oil and gas waste pits can be found in Appendix MD-3.

¹ Marcellus Shale Safe Drilling Initiative Executive Order 01.01.2011.11

url: <http://www.governor.maryland.gov/executiveorders/01.01.2011.11.pdf> accessed 1/23/14

² Quote from slide 4 of Marcellus Shale Public Health Study Final Progress Report presented June 28, 2014 refer to url:

http://phpa.dhmh.maryland.gov/OEHFP/EH/Shared%20Documents/Reports/2014.06.28_Public_Health_Study_ProgReport_2.pdf
accessed 10/2/14

³ Detailed Scoping Report: Potential Public Health Impacts Of Natural Gas Development And Production In The Marcellus Shale In Western Maryland Executive Summary page 4 last sentence url: <http://www.marcellushealth.org/detailed-scoping-report.html> accessed 1/23/14

⁴ University of Maryland Cooperative Extension, Water Quality and Environmental Programs, How Do You Affect Water Quality? (section 2 – page 1)

url: <http://www.epa.gov/region9/water/groundwater/uic-permits.html> accessed 10/02/14

⁶ EPA Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources

url: http://www2.epa.gov/sites/production/files/documents/hf_study_plan_110211_final_508.pdf accessed 10/02/14

⁷ *ibid*

⁸ *ibid*

⁹ *ibid*

¹⁰ *ibid*

¹¹ *Ibid*