April 15, 2014

The Honorable Martin O’Malley
100 State Circle
Annapolis, MD 21401

RE: Maryland Marcellus Shale Advisory Commission

Dear Governor O’Malley;

We are members of medical and scientific communities in New York and Maryland who have been actively researching gas drilling and carefully following the emerging data on the health impacts of hydraulic fracturing. Many of us have already submitted official commentary during the public comment period on the “Detailed Scoping Report: Potential Public Health Impacts of Natural Gas Development and Production in the Marcellus Shale in Western Maryland.”

We write to you to call attention to the rapidly evolving state of the science. Studies continue to uncover more credible evidence of human exposures to hydraulic fracturing-related pollutants and raise questions about possible harms. The range of health impacts that must be considered is growing.

The emerging science makes clear that risks to public health arise at every stage of the gas extraction process and may affect not only disease rates but also the fundamental conditions for human health. The state of the science also makes clear that Maryland’s health study being conducted as part of the Marcellus Shale Commission’s work sorely lacks the time, scope, and resources necessary to fulfill its mandate—namely, to determine the threats and impacts of gas drilling and hydraulic fracturing to public health and safety.

We believe that a study adequate to the task must at least include the following five elements:

• The study must consider the distribution of health effects within Maryland’s population, with special attention given to vulnerable subpopulations, including pregnant women, infants, children, and the elderly. A comprehensive Health Impact Assessment is the appropriate tool to do so (Concerned Health Professionals of New York, 2013). With protocols developed by the U.S. Centers for Disease Control and the World Health Organization, a comprehensive HIA is an accepted approach for understanding the actual and potential health risks of a proposed activity on an entire population. The need for a comprehensive HIA is made more urgent by new research showing that low-income and people of color communities in Maryland—including those in...
western areas of the state—are already disproportionately impacted by environmental hazards, unhealthy land uses, and inadequate health infrastructure (Wilson et al., 2014).

- The study must be re-scoped in light of fresh evidence that shale deposits exist in additional regions of the state. The initial study was scoped under the now-outdated assumption that hydraulic fracturing is possible only in the Marcellus Shale area of western Maryland.

- The study must inventory the chemicals that will be used in hydraulic fracturing operations and include health studies conducted on those chemicals.

- The study must quantify cumulative impacts, especially in regards to air pollution. Ground-level ozone in the form of smog—which is linked to asthma, preterm birth, stroke, heart attack, and shortened lifespans—has accompanied drilling and hydraulic fracturing operations in other states. Episodic peak levels of contaminants have been noted, but current air monitoring methods fail to capture these, including the synergistic effects of various chemical compounds (Brown, Weinberger, Lewis, & Bonaparte, 2014). Many areas of Maryland, our nation’s fifth most densely populated state, are already suffering from unhealthful air and ozone non-attainment (American Lung Association, 2013). The medical and economic consequences of further air emissions on public health must be assessed.

- The study must consider the impact of hydraulic fracturing on the conditions for health and safety. These include, but are not limited to stress, truck traffic, noise pollution, light at night, crime, local food production, availability of affordable housing, and recreational green space for exercise.

We note that Maryland Marcellus Shale Commissioners Ann Bristow, Paul Roberts and Nick Weber have already called for a longer timeline and correctly pointed out that the science related to hydraulic fracturing and health is relatively new (Bristow, Roberts, & Weber, 2014). We agree. Of the 145 papers that have now been published on this topic, over half appeared in 2013 alone, according to data compiled by Physicians Scientists & Engineers for Health Energy (Physicians Scientists & Engineers for Healthy Energy (PSE), 2014). A similar analysis of the studies posted on the Marcellus Shale Public Health website, which are those presumably being used by the health study team, yields a similar result. Forty-eight of the 99 studies listed there were published in 2013 or 2014. Several key peer-reviewed studies have appeared in the first months of 2014 raising critical new questions.

These studies and the emerging data are like pieces in a jigsaw puzzle that must be carefully assembled—with consideration of cumulative impacts and Maryland-specific variables—in order to determine the risks and health impacts that hydraulic fracturing would pose to Maryland residents. To attempt to do so within a handful of months—and with only $150,000 in resources—is not responsible.

Trends in reported data to date indicate the seriousness of the questions. Here are three data trends of great concern to us:

**Gas drilling and hydraulic fracturing are increasingly linked to surface and groundwater contamination.** The gas industry’s own data show that 5% of well casings suffer failures and leaks immediately, with much higher rates over time (Brufatto et al., 2003). In Pennsylvania, data from the state’s Department of Environmental Protection show 6-7% failure rates in each of the past three years (Ingraffea, 2013). This inherent problem opens pathways to groundwater
contamination from toxic frack fluids and hazardous chemicals present in the shale. Peer-reviewed studies have discussed the implications of these inherent problems with water contamination.

A 2013 Duke University study links hydraulic fracturing with nearby groundwater contamination (Crockett, 2013; Jackson et al., 2013), which corroborated an earlier study that found “systematic evidence for methane contamination of drinking water associated with shale gas extraction” (Osborn, Vengosh, Warner, & Jackson, 2011). Additionally, a 2013 University of Missouri School of Medicine study links hydraulic fracturing with dangerous hormone-disrupting chemicals in the water near hydraulic fracturing sites (Banerjee, 2013; Kassotis, Tillitt, Davis, Hormann, & Nagel, 2014), while a 2013 University of Texas at Arlington study found that “there are elevated levels of arsenic and other heavy metals close to natural gas extraction sites” in the Barnett Shale and that the compounds could end up in drinking water (Associated Press, 2013b; Fontenot et al., 2013).

Water contamination is becoming increasingly common. Notably, in Pennsylvania, state data currently confirm 161 homes, farms, churches and businesses had their water supplies damaged by drilling and hydraulic fracturing between 2008 and the fall of 2012 (Associated Press, 2013a). An Associated Press investigation similarly confirmed many cases of water contamination in four states they examined, noting that this casts “doubt on [the] industry view that it rarely happens” (Begos, 2014). Given recent and projected trends in rainfall and agricultural production throughout the country, Maryland’s fresh water supply may prove to be a far more valuable state asset than any fossil fuel reserves.

**Air pollution, including various toxic and carcinogenic chemicals, is significant.** From three years of monitoring data, the Colorado School of Public Health found air pollutants near hydraulic fracturing sites at levels that raise risks of cancer, neurological deficits and respiratory problems (Kelly, 2012; McKenzie, Witter, Newman, & Adgate, 2012). National Oceanic and Atmospheric Administration studies in 2013 (Gilman, Lerner, Kuster, & de Gouw, 2013) and 2012 (Pétron et al., 2012) both found that emissions from oil and gas fields in Colorado are significant contributors to high ozone levels. High ozone levels are linked with worsening asthma and increased risk of respiratory illnesses, stroke and heart attack. Data from the American Lung Association are similarly troubling, showing that intensely fracked rural areas suffer worse air quality than urban areas (Grossman, 2013).

Data from health department tests at West Virginia hydraulic fracturing sites reveal levels of benzene in the air that a health department administrator noted "really pop out” (Junkins, 2013). A recent investigation in Texas revealed hundreds of health complaints related to air pollution associated with gas drilling and hydraulic fracturing, leading the team of journalists to conclude that hydraulic fracturing is spewing a “toxic soup” of dangerous chemicals into the air (Morris, Song, & Hasemyer, 2014).

**Significant negative social impacts accompany gas drilling and hydraulic fracturing.** While independent analyses have shown that the gas industry’s economic projections have been greatly exaggerated, other data now reveal that gas drilling and hydraulic fracturing are accompanied by steep increases in crime, dangerous truck traffic and sexually transmitted diseases (Gibbons, 2013; Healy, 2013). These impacts have significant human and economic costs, and must be thoroughly considered and weighed.
Other studies and data indicate health threats from contamination of drinking water from hydraulic fracturing wastes; radiation releases; seismic activity and earthquakes linked to hydraulic fracturing and wastewater disposal; risks associated with flooding; risk of chemical migration through abandoned and active oil and gas wells; and exacerbation of climate change—itself a grave public health threat—from fugitive methane leaks throughout the gas extraction and distribution process. Explosions at wells and pipelines pose another risk to the public.

Maryland’s health study represents an opportunity of national significance. Conducting it with adequate time and resources could insure that Maryland’s public health is better protected than in any other state to date. The Governor’s original order admirably sought first to determine whether gas drilling and hydraulic fracturing “can be accomplished without unacceptable risks of adverse impacts to public health, safety, the environment and natural resources.” Because of the rapidly evolving state of the science on the public health threats posed by hydraulic fracturing, we request that you work with the Maryland Department of the Environment and Department of Natural Resources to ensure that additional time and resources are allocated for a comprehensive Health Impact Assessment.

Sincerely,

(signed)

Alliance of Nurses for Healthy Environments
Chesapeake Chapter – Physicians for Social Responsibility
Maryland Environmental Health Network
Concerned Health Professionals of New York

CC: Commissioners of the Maryland Marcellus Shale Advisory Commission
Secretary Joseph Gill
Secretary Robert Summers

References


Physicians Scientists & Engineers for Healthy Energy (PSE). (2014). PSE Study Citation Database: Health, from https://http://www.zotero.org/groups/pse_study_citation_database/items/collectionKey/SASKSKDG.