



CHESAPEAKE BAY FOUNDATION
Saving a National Treasure

February 28, 2011

US Environmental Protection Agency
Science Advisory Board Staff Office
Mr. Edward Hanlon, Designated Federal Officer
Mailcode 1400R
1200 Pennsylvania Ave., NW
Washington, DC 20460-4164

RE: Comments on EPA Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources (“EPA Study”), EPA/600/D-11/001/February 2011/www.epa.gov/research

To whom it may concern:

Introduction

On behalf of the Chesapeake Bay Foundation, Inc. (“CBF”), thank you for the opportunity to provide written comments on the United States Environmental Protection Agency’s (“EPA”) draft plan to study the potential impacts of hydraulic fracturing on drinking water resources. The CBF is the largest non-profit organization dedicated to restoring the Chesapeake Bay, and represents approximately 226,000 members and e-subscribers. We are active in federal, state and local legislative and regulatory arenas, to advocating on behalf of the nation’s largest estuary and vital economic and ecological region; the Chesapeake Bay.

The Chesapeake Bay watershed encompasses more than 64,000 square miles, including over 100,000 rivers and streams, stretching from New York to Virginia. The Bay and its watershed have been recognized by Congress as a “national treasure and resource of worldwide significance.”¹ Accordingly, in May 2009, President Obama issued executive Order 13508 aimed at renewing efforts to protect and restore the Bay’s health, heritage, natural resources, and social and economic value.²

¹ Chesapeake Bay Restoration Act of 2000, P.L. 106-457, Title II, §202, 114. 1967 (November 7, 2000).

² Executive Order 13508, Chesapeake Bay Protection and Restoration, 74 Fed. Reg. 23099 (May 15, 2009), available at: <http://www.whitehouse.gov/the-press-office/executive-order-chesapeake-bay-protection-and-restoration>.

As part of the CBF's efforts to ensure the full restoration and long-term protection of the Bay, potential impacts on the entire bay watershed must be assessed. As such, the CBF is acutely aware of the potential impacts the upsurge of natural gas production from unconventional shale formations may have on the Bay. The increase in shale producing activity may prove beneficial as natural gas becomes increasingly viewed as an important transitional fuel that is cleaner and safer than coal and oil. However, the alarming rate at which extraction activities have increased in the Bay watershed gives us great pause as we attempt to understand the full implications of the cumulative nature of these activities.

Recommendations

Congress directed the EPA to conduct research to examine the relationship between hydraulic fracturing and drinking water resources.³ The potential contamination of drinking water resources during unconventional natural gas extraction activities, and the associated threats of human exposure and potential health risks, is a leading concern for citizens in areas where hydraulic fracturing has and will occur. As you are aware, fracturing fluids are a mixture of fresh water, sand and chemical additives which are injected deep into the well under high pressure to enhance fractures in the rock and free the natural gas. While water and sand typically make up 99 percent of the composition, the remaining one percent is often comprised of numerous chemicals, many of which there are known or suspected human health and ecological concerns.⁴

The potential for drinking water contamination occurs from the moment the chemicals used in the hydraulic fracturing process appear on site and may continue as long as those chemicals remain on site in the form of residual fluids. As the EPA Study notes, chemical mixing, well injection, flowback and produced water, as well as waste water treatment and disposal, must be examined to assess the potential impacts on drinking water resources. CBF agrees that it is

³ See. Department of the Interior, Environment, and Related Agencies Appropriations Act, 2010, Rpt. 111-316, United States House of Representatives, October 28, 2009, pg 109.

⁴ According to the The Endocrine Disruptor Exchange ("TEDX"), nearly 80 percent of these chemicals are associated with skin, eye and sensory organ irritation and toxicity, followed by respiratory, gastrointestinal and liver effects, cardiovascular and blood disorders and brain and nervous system impairment. Nearly 45 percent of the chemicals were identified as having potential negative ecological impacts. See. <http://www.endocrinedisruption.com/home.php>

necessary to study and understand both the short-term and long-term effects of hydraulic fracturing activities on our valuable drinking water supplies.

CBF also agrees that it is imperative to fully comprehend the potential implications of large volume water withdrawals from ground water and surface water on drinking water resources. Water usage for unconventional natural gas extraction is significantly larger than more conventional drilling operations and often requires two (2) to four (4) million gallons of water per well. Concerns over the volume, as well as the high rate of water withdrawals from small streams in the headwaters of watersheds, have potential implications not only on drinking water resources, but also with respect to the water quality of the Bay and its watershed.

While the CBF acknowledges and applauds the Congressional directive requiring the EPA to study the relationship between hydraulic fracturing and drinking water resources, the CBF is acutely aware of a myriad of others issues of concern surrounding the booming natural gas extraction industry which are not being addressed by the EPA in this study. Specifically, in the area of water resources, the CBF urges the EPA to look beyond water withdrawal concerns only as they pertain to drinking water resources and examine the effects of rate and flow reductions on overall stream health. Local stream degradation in the Bay watershed from toxic chemicals, high levels of salt and radioactive materials, combined with forest fragmentation and accelerated erosion leading to increased sediment loads could prove extremely detrimental to renewed attempts to restore the Bay.

The EPA's recent adoption of a Total Maximum Daily Load ("TMDL") for the Bay requires states to monitor and address impacts of waste loads into the waters of the Bay watershed. Much of the area currently being developed for natural gas extraction in the Marcellus Shale formation lies within the Bay watershed. With a typical site disturbance at a shale gas production site ranging from three (3) to five (5) acres, combined with increases in pipelines and access roads, the potential for increased waste loads to the waters of the Bay seems likely. The failure of states and the EPA to properly assess and account for any increased nutrient and sediment loads as a result of the impact of these activities combined with the changing landscape may hamper the ability of the various sectors to attain their equitable share of load reduction.

To date, there has been a failure of both federal and state agencies, as well as the industry itself, to assess and address the potential cumulative impacts of unconventional natural gas extraction. The construction of drilling pads, wells, access roads, increased truck traffic and pipelines, combined with strains on water resources and air quality, habitat destruction and landscape changes must not be viewed in a vacuum. Thus, the CBF urges the EPA to expand the focus of its study to include a review of the potential cumulative impacts of natural gas extraction on all aspects of the health, welfare and environment of a state where hydraulic fracturing is taking place and not only to determine the effects on drinking water resources. At a minimum, the CBF would suggest that the EPA engage in a new study which would focus on the cumulative impacts of unconventional shale extraction.

As noted in the EPA Study, a need “to provide a holistic view of the impacts of hydraulic fracturing on human health and the environment” should be completed and integrated with the results of the current study.⁵ Disposal of hydraulic fracturing wastewater in class II underground injection wells, air quality, terrestrial and aquatic ecosystem impacts, seismic risks, public safety concerns, occupational risks and economic impacts are all important areas which demand further attention and study. Within each of these highlighted categories corresponding laws, regulations and policies must also be examined to ensure that potentially far reaching exemptions in The Energy Policy Act of 2005, the Resource Conservation and Recovery Act, Emergency Planning and Community Right to Know Act, Comprehensive Environmental Response, Compensation and Liability Act, the Clean Air act and the National Environmental Policy Act are addressed.

Conclusion

The CBF would like to applaud the thoughtful approach applied to the creation of the EPA Study to assess the potential impacts of hydraulic fracturing on drinking water resources. While the CBF agrees with Congress and the EPA that the potential impacts to drinking water supplies is a leading concern of citizens and an area which must be addressed immediately to ensure the health and welfare of citizens in regions where unconventional shale drilling is taking place, we would also like to see the EPA conduct a more comprehensive review of the potential cumulative impacts of drilling, most notably in the Bay watershed.

⁵ *Draft Plan to Study the Potential Impacts of hydraulic Fracturing on Drinking Water Resources*, EPA/600/D-11/001/February 20011/www.epa.gov/research, page 54.

Thank you again for the opportunity to present our views. The CBF looks forward to working with the EPA and other stakeholders to ensure that comprehensive study of hydraulic fracturing and the potential cumulative impacts of unconventional shale drilling are completed.

Respectfully Submitted,

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