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March 29, 2010

DELIVERY VIA PERSONAL DELIVERY AND E-MAIL (hanlon.edward@epa.gov)

Edward Hanlon, Designated Federal Officer
EPA Science Advisory Board (1400F)
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW.
Washington, DC 20460

Re: Comments on Proposed Design of EPA Research Study on Potential Relationships Between Hydraulic Fracturing and Drinking Water Resources
[75 Fed. Reg. 13125 (Mar. 18, 2010)]

Dear Sir:

The Ohio Oil and Gas Association (Association or OOGA), on behalf of itself and its members, welcomes this opportunity to comment on the proposed design of an EPA research study on the potential relationship between hydraulic fracturing and drinking water resources noticed in the Federal Register on March 18, 2010. As set forth in greater detail below, the Association believes that any study must be open and transparent, provide meaningful opportunity for the public to comment, and consist of a scientific, fact-based examination of the relevant issues. Moreover, the Association believes that the initial focus of any study should be on whether there is any credible, scientific evidence to support a claim that hydraulic fracturing – as distinct from other exploration and drilling operations, and which has been in use nationally for over 60 years – has in fact contaminated drinking water resources. Only if that issue is answered affirmatively should there be further study of whether hydraulic fracturing should be regulated at the federal instead of the state level.

Introduction

The Association is one of the largest state-based oil and natural gas associations in the country and has served as the representative of Ohio's oil and gas producing industry since 1947. Its 1,500 members are primarily small business entities, similar to small family farms, involved in all aspects of the exploration, development, production and marketing of crude oil and natural

gas resources in the State of Ohio. Because of the small size of most Association members, they often rely on OOGA as their primary source of information on industry trends, activities, tax changes, legislation and regulatory matters. The Association also serves to protect its members' interests by participating in federal and state regulatory actions involving the crude oil and natural gas industry.

Ohio is located in the Appalachian Basin, the most mature producing basin in the country. Nowhere else in North America has commercial oil and gas production existed longer. Its history reaches back to the completion of the first commercial oil well by Colonel Drake in Titusville, Pennsylvania in 1859. Hundreds of thousands of wells have been drilled and completed in the Appalachian Basin, producing billions of cubic feet (Bcf) of natural gas and millions of barrels of oil every year for ultimate consumption by this country's citizens (e.g., Ohio produced over 88 Bcf of natural gas and 5 million barrels of oil in 2009). Much of this production comes from low-volume wells that are characterized in the industry as "marginal." Hydraulic fracturing is a common and necessary procedure used by Ohio producers to complete oil and natural gas wells.

On March 18, 2010, U.S. EPA's Science Advisory Board (SAB) announced a public meeting of the SAB Environmental Engineering Committee to evaluate and comment on EPA's proposed approach to study the potential public health and environmental protection issues that may be associated with hydraulic fracturing. See 75 Fed. Reg. 13125. That announcement stated that written comments on the approach should be received by Designated Federal Officer (DFO) just over a week later, by March 29, 2010.

The Association now submits its comments accordingly.

Comments

Hydraulic Fracturing Overview

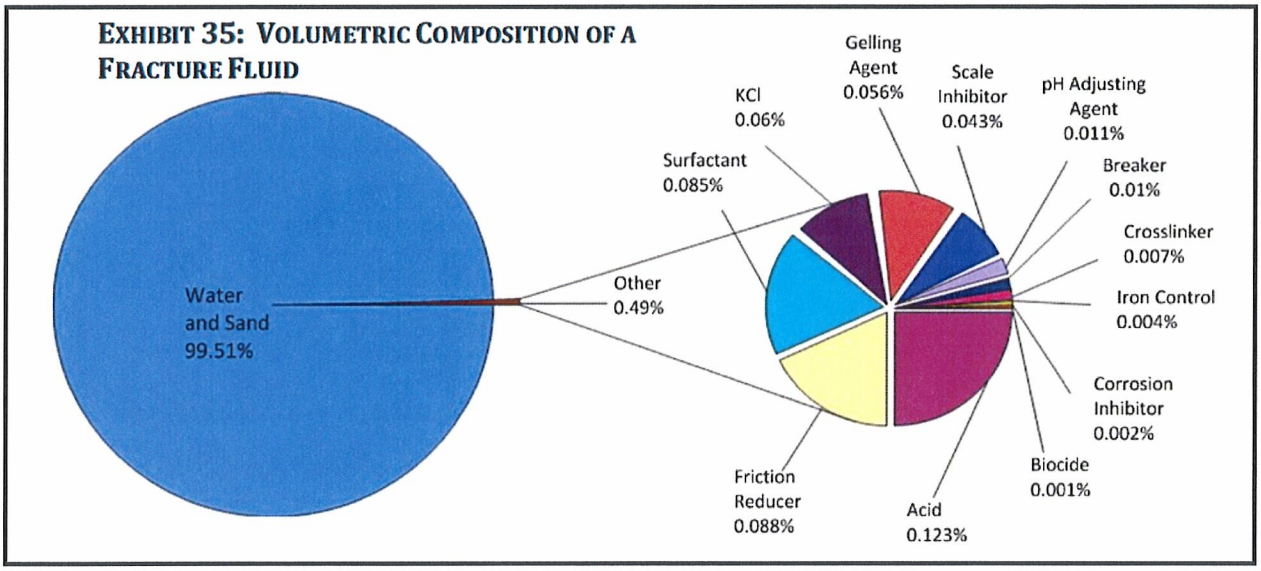
Hydraulic fracturing is a primary factor in the economic recovery of natural gas – and indeed, oil – from natural gas and crude oil producing basins throughout the United States. It is a process necessary to develop the economic flow of crude oil and natural gas from most traditional reservoirs and has recently been used with success in the new resource shale reservoirs. Fracturing has been in use since the 1950's in Ohio to develop more than 76,000 wells, nearly all completed in traditional reservoirs. It involves the pumping of a fracturing fluid, primarily water, into the target formation – typically tight sands in Ohio, such as the Silurian Clinton sandstone – under pressure sufficient to induce a fracture within the target rock reservoir that most often is located thousands of feet below the surface. This fracture creates permeability where there was none before in the producing formation and which is necessary to allow the energy resource to flow out of the target formation to the well bore in economic quantities.[1] This has

[1] See generally The Ground Water Protection Council, *Modern Shale Gas Development in the United States: A Primer* (April 2009) (hereafter, "*Shale Gas Primer*"); and The Ground Water Protection Council, *State Oil and Nat-*

transformed Ohio from a good potential, good porosity, poor permeability producing state to a good potential, good porosity, *good* permeability producing state.

Today's hydraulic fracturing practices are sophisticated, highly-engineered and controlled processes designed to the specific conditions of the target formation and thus vary from well to well and basin to basin. Fracturing in Ohio typically involves the stimulation of a vertical well, although there are horizontal frac jobs as well. The fracturing of a horizontal well is typically performed in stages (i.e., by isolating shorter lateral lengths) because the total lateral length may range from 1,000 feet to more than a mile, with fracturing done sequentially beginning with the lateral section farthest from the wellbore. Each stage is similar, though, to the fracturing treatment for a vertical well. This is preceded by a series of tests designed to ensure that the well, well equipment and hydraulic fracturing equipment are in proper working order and include testing of well casings and cements during the well drilling and construction process.

The fracturing fluids consist primarily of water, small concentrations of additives depending on the specific conditions of the well being fractured, and proppant materials such as fine-grained sand designed to hold the fractures open. The Ground Water Protection Council, a national association of state ground water and underground injection control regulatory agencies, depicts, for example, the volumetric percentages of a typical fracturing fluid used in the Fayetteville Shale as follows:[2]



It also notes that while many of the chemicals used in the hydraulic fracturing process could be considered hazardous in large and undiluted quantities, the same can be said for virtually all chemicals if not handled properly, including those that go into our food or drinking water, such

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ural Gas Regulations Designed to Protect Water Resources (May 2009) (hereafter, "*State Oil and Natural Gas Regulations*").

[2] *Shale Gas Primer* at 62.

as chlorine.[3] Thus, for example, common additives in the frac process include a biocide, also used to sterilize medical and dental equipment; diluted acids, also used in swimming pool chemicals and cleaners; and friction reducers, also used for water treatment and to remove make-up.

The volume of water used to fracture a well in Ohio is typically less than 100,000 gallons – or less than 2,000 barrels. Even in larger horizontal wells looking to develop shale gas, however, the volume of water nationally typically ranges from 2 to 4 million gallons, but can vary substantially from well to well and is decreasing as technologies and methods improve. To put that in perspective, electrical generation in the Susquehanna River Basin alone uses nearly 150 million gallons of fresh water each day,[4] the typical golf course uses 3 million gallons of water in 1 week on an ongoing basis, and a city with a population of more than 8 million people uses a similar amount of water in only 4 minutes.[5] Moreover, the American Petroleum Institute reports that all of the hydraulic fracturing activity that took place in 2009 in Pennsylvania used only 5 percent of the amount of water used in the state for recreational purposes that year (such as for golf courses and ski resorts).

Hydraulic fracturing operations are effectively regulated today. There are fundamental differences from state to state, and even between regions within a state, in terms of geology and hydrology, leading state regulators to historically tailor their regulatory programs to meet individual state needs to their advantage. Notably, this has led the Ground Water Protection Council to conclude that state oil and gas regulatory programs are protective of water resources, including drinking water resources (the matter at issue in the EPA proposed study here), through their permitting, well construction, well plugging and temporary abandonment provisions.[6] And even more specifically, "Experience suggests that **state oil and gas regulations related to well construction are designed to be protective of ground water resources relative to the potential effects of hydraulic fracturing**."[7] Here in Ohio, for example, frac operations are regulated by the Department of Natural Resources, Division of Mineral Resources Management (DMRM). In New York, the state Department of Environmental Conservation is revising its regulations extensively in response to substantial public comments received over the last year. The same is true for Pennsylvania.

EPA Study Scope

The Association believes that the initial focus of any study should be on the narrow issue of whether there is any credible, scientific evidence to support a claim that hydraulic fracturing operations – separate and distinct from other exploration and drilling operations – have in fact contaminated drinking water resources; and only if so, should U.S. EPA then consider additional study of the issue related to the then-established causes of that contamination. As noted above, hydraulic fracturing has been used for over 60 years to develop our nation's oil and gas re-

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[3] *Id.*
[4] *Id.* at 65.
[5] Oil & Gas Journal, *Special Report: Hydraulic fracturing, water use issues under congressional, public scrutiny* (Jul. 2009).
[6] *State Oil and Natural Gas Regulations* at 7.
[7] *Id.*

sources. Only recently, however, have there been focused claims of alleged contamination due to this technology. When U.S. EPA first examined this issue with respect to coal-bed methane development in 2004 – where the target formation is generally substantially closer in terms of vertical depth to underground sources of drinking water – EPA concluded "that the injection of hydraulic fracturing fluids into CBM [i.e., coal-bed methane] wells **poses little or no threat to USDWs** and does not justify additional study at this time."[8] Moreover, it found that "**[a]lthough thousands of CBM wells are fractured annually, EPA did not find confirmed evidence** that drinking water wells have been contaminated by hydraulic fracturing fluid injection into CBM wells."[9] The Association believes that a similar study will show that the hydraulic fracturing process more generally has posed little or no threat to drinking water resources historically and therefore does not justify further study at this time.[10]

The Association believes that the study process should be open, transparent, and provide a meaningful opportunity for comment at all stages. It should involve in its leadership individuals knowledgeable about industry practices. This is particularly important to the integrity of the process and the credibility of the outcome. There have been numerous claims in news articles and elsewhere, for example, seeking to connect the process of hydraulic fracturing with drinking water contamination issues. But those claims have often conflated, intentionally or unintentionally, unrelated issues, such as improper well construction or drill site preparation, for example, with the distinct process of hydraulic fracturing in an effort to sensationalize and artificially inflate the alleged dangers associated with that technology. Simply put, sensationalized stories that are factually inaccurate should not drive this study. An open, transparent, and inclusive process is essential therefore to the accuracy and credibility of the outcome.[11]

The Association believes therefore that many of the items developed for discussion in the *Scoping Materials for Initial Design of EPA Research Study on Potential Relationships Between Hydraulic Fracturing and Drinking Water Resources* are premature and beyond the scope of the study contemplated by Congress. As noted in the *Scoping Materials*, the U.S. House of Representatives Appropriation Conference Committee "**identified the need for a *focused study* of this topic**":[12]

> The conferees urge the Agency to carry out a study on the relationship between **hydraulic fracturing and drinking water**, using a

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[8] U.S. EPA, *Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs* at ES-1 (June 2004) (emphasis added).

[9] *Id.* (emphasis added).

[10] For example, the Wall Street Journal reported on February 15, 2010, that Steve Heare, Director of EPA's Drinking Water Protection Division, stated that despite claims by environmental organizations, he had see no documented cases of hydraulic fracturing causing contamination of water supplies. This is wholly consistent with the testimony of senior U.S. EPA and U.S. Geological Survey officials before the Senate Environment and Public Works Committee on December 8, 2009, who, when asked whether they could identify a single instance of ground water contamination resulting from hydraulic fracturing operations, said they could not.

[11] As just one example, the Association believes that interested parties should be given more than just one week to review and comment on materials and other items at issue in this proceeding, as was the case for the *Scoping Materials*.

[12] *Scoping Materials* at 2 (emphasis added).

> credible approach that relies on the **best available science**, as well as **independent sources of information**. The conferees expect the study to be conducted through a **transparent, peer-reviewed process** that will ensure the validity and accuracy of the data.[13]

Given this legislative direction, the Association believes that it is premature and beyond the contemplated scope of the study to look more broadly at how hydraulic fracturing operations may impact public health or present environmental risks generally; the role of socio-economic factors in understanding how to address potential health and environmental concerns; or how hydraulic fracturing may impact aquatic ecosystems and recreational activities.

Regarding the potential research questions posed more specifically by U.S. EPA, the Association objects to all as unnecessary and beyond the scope of the authorized study unless they relate directly to the initial scope identified above – i.e., unless they relate directly to the narrow issue of whether there is any credible, scientific evidence to support a claim that hydraulic fracturing operations, separate and distinct from other exploration and drilling operations, have in fact contaminated drinking water supplies. Accordingly, and by way of example only, the Association objects to research questions involving how hydraulic fracturing operations might be mapped to evaluate proximity to communities that might face socio-economic hardships; how hydraulic fracturing operations are sited in relation to other injection or extraction operations; what tools and analytical methods are needed to characterize emissions from hydraulic fracturing operations; what the potential options are for restoring impacted aquifers; the potential for livestock, crops and wildlife to be impacted; and community health and environmental justice issues associated with hydraulic fracturing operations.[14] Those issues are not relevant to EPA's charge from Congress.

Conclusion

In sum, the Association urges, and indeed welcomes, U.S. EPA to conduct a narrowly-focused study on the issue of whether there is reliable scientific evidence to support a claim that activities unique to hydraulic fracturing operations, as distinct and separate from other exploration and development operations, have in fact contaminated drinking water supplies. That study should be open, transparent, and provide a meaningful opportunity to comment by interested parties; and it should be peer-reviewed and involve leadership individuals and associations knowledgeable about the activities involved. Importantly, any such study should not be a solution looking for a problem to solve. Rather, it should involve a legitimate, credible scientific inquiry into whether there really is a problem in the first instance, especially considering that EPA has already concluded that hydraulic fracturing of CBM wells poses little or no risk to USDWs.

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[13] *Id.*

[14] The fact that the Association has not mentioned every potential discussion item identified in the *Scoping Materials* here should not be interpreted to mean acceptance of any particular item as appropriate for study.

If there are any questions, you can reach the Association through its counsel at the contact information provided below.

Respectfully submitted,

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