AMERICAN EXPLORATION & PRODUCTION COUNCIL

August 28, 2015

Via email

Mr. Edward Hanlon
Designated Federal Officer
EPA Science Advisory Board Staff Office (1400R)
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., NW
Washington, DC 20460

Re: Comments of the American Exploration & Production Council (AXPC) on the U.S. Environmental Protection Agency's Draft Report, *Assessment of Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources* (May, 2015 External Review Draft, EPA/600/R-15/047), 80 Federal Register 32,111 (June 5, 2015)

Dear Mr. Hanlon:

AXPC is a national trade association representing thirty one of America's largest, most active independent natural gas and crude oil exploration and production companies. AXPC's members are independent in that their operations are limited to the exploration for and the recovery of natural gas and crude oil. Moreover, its members operate autonomously, unlike their fully integrated counterparts, which operate in additional segments of the energy business, such as downstream refining and marketing. AXPC's members, driven by their unique position as large independent operators, are leaders in the development and application of innovative and advanced technologies necessary to continue to explore for and recover crude oil and natural gas. Specifically, members of AXPC have substantial interest and expertise in the hydraulic fracturing process, both as pioneers of the technology, and as investors in the research and development of the high-tech process.

On June 4, 2015, EPA released the Agency's Draft Report, titled *Assessment of Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources.* AXPC supports the ultimate conclusion of the report, as stated in EPA's June 4th press release, that, **"hydraulic fracturing activities have not led to widespread, systemic impacts to drinking**

water resources." This conclusion confirms the positive environmental and safety record of hydraulic fracturing that AXPC members and state regulators have worked diligently to create. AXPC members have provided technical comments and constructive feedback to EPA's work in studying that confirm this positive conclusion, and were pleased to see the findings ultimately represented in EPA's draft report.

Outside of the conclusion of the report, there are still details and data within the report that require additional refinement. AXPC member companies are pleased to provide valuable feedback to add clarity, consistency, and accuracy to the final report published by the U.S. Environmental Protection Agency (EPA), and specifically, identify three areas of concern:

1. The scope of the report has been significantly expanded from that which was requested by Congress, and in the final report, EPA should qualify and explain the changes in project's scope.
2. The definition of drinking water used in the report is inexplicably different from previous understandings of the term "drinking water," including EPA's own definitions. To avoid public confusion and satisfy direction from Congress, the final report should revert to a previous definition.
3. The conclusions from the widely discredited Pavillion, Wyoming sampling are mischaracterized, as they do not include the critique and criticism provided by the scientific community. The inclusion of this discredited data increases public confusion about hydraulic fracturing, and should be removed.

In addition to the areas of concern listed above, AXPC fully supports the comments proved by the American Petroleum Institute (API) on August 28, 2015, and incorporates those comments by reference.

Background

In 2010, the 111th Congress, in House Report 111-316, directed EPA to study hydraulic fracturing's potential impact on drinking water, writing:

> "The conferees urge the Agency to carry out a study on the relationship between hydraulic fracturing and drinking water, using a 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. The Agency shall consult with other Federal agencies as well as

> appropriate State and interstate regulatory agencies in carrying out the study, which should be prepared in accordance with the Agency's quality assurance principles."

After that directive was given, EPA began crafting a study plan, and at that time AXPC member companies began to offer to provide technical information to support the report. Throughout the study process, AXPC members have continued to offer resources and feedback to help increase the accuracy and ultimate value of the report. While AXPC agrees with the ultimate conclusion of the report, that, **"hydraulic fracturing activities have not led to widespread, systemic impacts to drinking water resources,"** there remain technical flaws in the external review draft of the report that merit correction. Ultimately, AXPC and its members are committed to the pursuit and revelation of the most accurate science around hydraulic fracturing, and believe the final report published by EPA can provide value to the public through correcting misconceptions about hydraulic fracturing, and by providing a scientific basis to explain the technology's 65-year track record of safety.

The Scope of the Report Should be Explained

EPA's study was informed and instructed by a directive from the House Appropriations Committee to study the potential impacts of hydraulic fracturing on drinking water resources. The final report, however, goes far beyond the hydraulic fracturing process, and even beyond the completion stage of well development. For example, the chapter titles alone in the report list chemical mixing, flowback and produced water, wastewater treatment, waste disposal, and designing, constructing, and testing wells for integrity. These steps, while certainly part of the well construction and completion process, are not intrinsically related to hydraulic fracturing itself. For example, produced water management, wastewater treatment and disposal, well design, well construction, and integrity testing all are steps in the well development process for conventional wells that do not use hydraulic fracturing.

AXPC member companies believe the use of the term "hydraulic fracturing" to describe the oil and gas exploration and production process is intentionally misleading to the public. Hydraulic fracturing is a distinct well completion technique, with its own specific place in the timeline of some oil and gas wells. When used to describe the entire development process, the previously unacquainted public is led to believe that an entirely new, understudied practice is taking place. This leads to misconceptions about the regulation of the process, misconceptions about the subsurface physics of the process, and misconceptions about whether it poses any threat to the health and safety of the public and the environment.

There are two potential options by which EPA could rectify the problem of an overly broad scope. First, EPA could contract the scope of the report, so that the final report focuses solely on the hydraulic fracturing process itself. This option is not preferable to AXPC, and likely not to EPA as well. AXPC believes there is too much value in the out-of-scope work that has been done to remove it from the overall report. However, the expanded scope should be recognized and explained.

The second option acknowledges this need to recognize and explain the additional scope. EPA could provide further context and elaboration on what the report actually covers. EPA has taken a very broad look at all of the data in the most oil and gas development process as it related to drinking water, and come to some very important conclusions, which can help better inform our nation's energy policy decisions. EPA should take advantage of the work that has been done so far, and put it in such a context that it explains to the public the broad scope that the report covers. In the situations where hydraulic fracturing is not the cause or reason for a potential or actual impact to drinking water, EPA should explain that the impacts listed are due to other causes not related to hydraulic fracturing. For example, the incidents listed in Bainbridge, Ohio and Killdeer, North Dakota were directly attributed to inadequate cementing and a failed casing string, respectively, yet the final report would lead the reader to believe the two incidents were caused by hydraulic fracturing. These and other examples where impacts are not related to hydraulic fracturing need not be completely removed from the report so long as they are explained by EPA in such a way that assures the public that they aren't related to the hydraulic fracturing process itself. This explanation and context is vital to the prevention of public confusion.

Finally, this report, in conjunction with EPA's 2004 report titled *Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs,* can be used to show that the research is thorough and complete. The authors of the 2004 report wrote that hydraulic fracturing poses "minimal threat" to drinking water and that "additional or further study is not warranted at this time." Combined with this report's conclusion that "hydraulic fracturing activities have not led to widespread, systemic impacts to drinking water resources," it is safe to conclude that there is no threat to drinking water resources from hydraulic fracturing.

The Definition of Drinking Water Used in the Report is Overly Broad

The Federal Safe Drinking Water Act, passed in 1974, amended in 1986 and 1996, outlines the regulatory authority by which EPA must regulate

underground injection and the protection of underground sources of drinking water. An Underground Source of Drinking Water, as defined in 40 CFR 144.3 is, "an aquifer or part of an aquifer which supplies any public water system, or contains a sufficient quantity of ground water to supply a public water system and currently supplies drinking water for human consumption or contains fewer than 10,000 milligrams/liter of Total Dissolved Solids (TDS), and is not an exempted aquifer."[1]

Exempted aquifers themselves are defined by EPA as,

> "Part or all of an aquifer which meets the definition of a USDW but which has been exempted according to the criteria found in 40 CFR Section 146.04, which specifies that it does not currently serve as a source of drinking water, and it cannot now and will not in the future serve as a source of drinking water for one of the following reasons:
>
> It is mineral, hydrocarbon or geothermal energy producing, or can be demonstrated by a permit applicant as part of a permit application for a Class II or III operation to contain minerals or hydrocarbons that considering their quantity and location are expected to be commercially producible
>
> It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical
>
> It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption
>
> It is located over a Class III well mining area subject to subsidence or catastrophic collapse; or The total dissolved solids content of the ground water is more than 3,000 and less than 10,000 milligrams/liter and it is not reasonably expected to supply a public water system"[2]

Congress, in providing the 2010 directive to EPA, would have understood drinking water resources to fall within the category of waters as previously

[1] 40 CFR 144.3 - Definitions

[2] http://www.epa.gov/region1/eco/drinkwater/terms.html

defined by EPA, but instead of using the definition Congress intended, EPA developed a new definition of drinking water resources that had not been used previously in Congress or by EPA. This definition, "any body of ground water or surface water that now serves, or in the future could serve, as a source of drinking water for public or private use and encompasses both fresh water and non-fresh bodies of water," should be replaced with a definition more reflective of congressional intent. Specifically, the definition used in the study should be based on specific water quality criteria in combination of criteria set forth previously by EPA. Without water quality information, a determination of whether a water could feasibly serve as a drinking water source cannot be made. This again leads to public confusion when comparing results of analyses of underground sources of drinking water and sources of water listed in the draft report.

The References to Pavillion Should be Removed

EPA identifies a list of above-ground and below-ground mechanisms or activities that may have the potential to impact drinking water resources, and lists one as, "fracturing directly into underground drinking water resources."[3] EPA also mentions possible mechanisms such as water withdrawals in times and areas of low water availability; hydraulic fracturing fluids and produced water spills; below ground migration of liquids and gases; and inadequate treatment and discharge of wastewater. AXPC member companies recognize and acknowledge the potential that these other mechanisms have to impact drinking water resources, and have process, protections, and protocols in place, informed by state regulation, to minimize this potential. However, the mechanism of fracturing directly into underground drinking water sources is confusing.

In Chapter 6 of the draft report, EPA elaborates on this particular mechanism, claiming that, "one example of hydraulic fracturing taking place within a geologic formation that is also used as a drinking water source is in the Wind River Basin in Wyoming."[4] The draft report references the Pavillion, Wyoming sampling work completed by EPA, and the subsequent work done by the Wyoming Oil and Gas Compact Commission and the U.S. Geological Survey (USGS). EPA should remove any reference to the Pavillion, Wyoming case as it relates to hydraulic fracturing, as including it in the final report would not only add to public confusion, but also jeopardize the scientific integrity of the report itself. Not only have API and other national trade associations provided criticism and feedback to EPA's Pavillion work, but USGS and Bureau of Land Management (BLM) each individually provided criticism and feedback to EPA.

[3] Draft Report, pg. ES-6
[4] Draft Report, pg. 6-32

For example, in a letter dated March 1, 2012 BLM writes to EPA,

> "Bias in the samples obtained from these wells may exist. Possible causes include transfer of shallow contamination into deeper zones through the drilling process, or contamination of samples through the introduction of contamination during the drilling and well installation process...
>
> In addition, the development of these monitor wells appears to be deficient for sampling purposes and groundwater samples from the wells should not be fully trusted until development activities indicate that the wells are yielding formation water untainted by any effects introduced by the drilling, well completion, and sampling process. ...
>
> Only through careful drilling, installation and development can reliable samples of groundwater be obtained...
>
> ...observations have shown that large amounts of gas have been found in the shallow subsurface at certain locations.
>
> These observations are anticipated and should not be prematurely used as a line of evidence that supports EPA's suggestion that gas has migrated into the shallow subsurface due to hydraulic fracturing or improper well completion until more data is collected and analyzed..."

Further, USGS provided data to EPA which showed that in different cases USGS was unable to replicate the data in EPA reports. In response to this criticism from API, BLM, and different data from the USGS, EPA stated on June 20, 2013 that it did "not plan to finalize or seek peer review of its draft Pavillion groundwater report released in December, 2011. **Nor does the agency plan to rely upon the conclusions in the draft report**. EPA is conducting a major research program on the relationship between hydraulic fracturing and drinking water in different areas of the country and will release a draft report in late 2014. EPA will look to the results of that national program as the basis for its scientific conclusions and recommendations on hydraulic fracturing." [emphasis added]

If EPA did not plan to rely upon the conclusions in the Pavillion draft report, as advised by technical review and feedback from industry and other federal agencies, it has no place in the final hydraulic fracturing report.

Conclusion

The American Exploration & Production Council commends EPA for the work undertaken and completed in the draft report, and believes the final report will add value, clarity, and increased public understanding of hydraulic fracturing and the larger oil and gas development process, so long as the changes suggested in this document are made. In addition, AXPC fully supports the comments filed by the American Petroleum Institute, and respectfully requests EPA to adjust the final report in response to their comments as well.

AXPC member companies believe that, even in its draft format, the report's key conclusion, that **"hydraulic fracturing activities have not led to widespread, systemic impacts to drinking water resources,"** is valid. The draft assessment report, even in its expanded scope, serves as a testament to the work that state regulators and industry scientists have undertaken to ensure the oil and gas development process is performed in a way that protects the health and safety of the public, our employees, and the environment.

Respectfully submitted,

Bruce Thompson
President
American Exploration & Production Council

101 Constitution Avenue, NW
Suite 700E
Washington, DC 20001

Direct - 202.742.4541
Email - BThompson@AXPC.us