



May 13, 2011

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

Re: Science Advisory Board Review of the *Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources*

This statement is submitted on behalf of the Independent Petroleum Association of America (IPAA), Energy In Depth (EID) and the American Exploration and Production Council (AXPC) with regard to the U.S. Environmental Protection Agency's (EPA) Science Advisory Board (SAB) Review Draft of EPA's Hydraulic Fracturing Study Plan.

The IPAA represents the thousands of independent oil and natural gas producers that develop 90 percent of US wells and produce over 80 percent of US natural gas. Approximately 90 percent of these wells now require the use of hydraulic fracturing. EID is a coalition of national, regional and state trade association as well as oil and natural gas companies that is dedicated to providing information on the environmental issues associated with the development of these resources. AXPC is a national trade association that represents large United States independent natural gas and crude oil exploration and production companies.

We have reviewed the U.S. Environmental Protection Agency's (EPA) Science Advisory Board Review draft of EPA's Hydraulic Fracturing Study Plan and are concerned that its response to the study fails to address several key issues and perpetuates a scope of the study that goes well beyond relationships between hydraulic fracturing and drinking water that Congress intended.

More specifically, it is essential to focus on two key points that wind through the draft SAB Review. The first issue drives all of the fundamental concerns – what the study is and what it is not. The Congressional mandate is to undertake "...a study on the relationship between hydraulic fracturing and drinking water..." The Congressional request relates to a scientific assessment of the impacts of hydraulic fracturing on drinking water. It is not a mandate to assess the broad impacts of natural gas and oil production on the environment. It is not a request to evaluate the broad environmental policies in EPA's regulatory framework. Second, the study faces the reality of a limited budget. It must be structured to operate within those budget constraints. The draft SAB Review makes various statements recognizing these limitations but then fails to adhere to them as it raises issues that are well outside the Congressional scope and/or are far too costly to complete.

It is critical to distinguish between those activities that are fracturing related and those that exist at all natural gas and oil production activities regardless of whether fracturing occurs. At issue is whether the current study plan proposes to focus on features of oil and gas production

that are particular to or closely associated with hydraulic fracturing and their impacts on drinking water resources.

The fracturing process is a temporal element of the production process that occurs in a narrow window of time during the drilling operation. Hydraulic fracturing occurs following completion of the well bore and uses a water and sand mixture to break down the natural gas or oil containing structure. The fracturing flowback fluids are then removed and the well is conditioned for production of natural gas or oil. However, in all instances, fracturing is a short term action in the larger drilling and production process.

While the draft SAB Review includes a large array of comments, there is a pattern within the Review that demonstrates its failure to adhere to the critical constraints on the study. Following are a number of examples.

A number of times in the draft Review, the SAB describes the need for the study to respect its limited budget and scope. Regularly, it then ignores these obvious limits and raises issues. For example, the SAB proposes that the EPA should consider environmental justice perspectives when assessing local environmental and health impacts. This action is outside of the scope of the current study. EPA characterizes environmental justice as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.” The environmental and safety issues and the effects of hydraulic fracturing in the context of the local community is a concern for us all, but it is a policy question associated with development decisions not a technical question associated with fracturing affecting drinking water and should not be an explicit research question in the context of this study. Similarly, the draft Review suggests that EPA:

Reconsider the present definition of “drinking water resources” related to hydraulic fracturing activities as waters limited to those with less than 10,000 mg/L of total dissolved solids, given recent advances in membrane desalination and likely changes in perspectives of what constitutes potential drinking water sources in the future.

The definition of an Underground Source of Drinking Water (USDW) is a part of the regulatory framework of the Safe Drinking Water Act (SDWA) and its Underground Injection Control (UIC) program. While the definition is important, it is not the subject of this study. The study should be assessing whether there is a pathway that can affect drinking water regardless of its definition. Determining whether to revise the USDW definition is a far broader and largely unrelated issue.

The draft Review raises the question of limiting the study to issues associated with hydraulic fracturing but fails to draw the appropriate distinction itself. For example, the draft Review recommends that EPA:

Define and differentiate flowback and produced water, and clearly distinguish such waters from other water used during the hydraulic fracturing process.

This recommendation is fundamentally flawed because it fails to recognize the need to define and differentiate between fracturing flowback and produced water. Produced water results from any natural gas or oil production operation when water trapped in the reservoir being developed is released. It is not unique to hydraulic fractured wells and should not be included in the scope

of this study. Similarly, proposals to investigate water acquisition, well construction and wastewater disposal are directed toward issues that are not unique to hydraulic fracturing but are common to all oil and gas production activities. To expand the scope of the study to aspects of the drilling and production process that were not specifically related to hydraulic fracturing are, therefore, beyond the scope of Congressional intent. The draft SAB Review recommendations related to water supply implications appear to be predicated on ill-founded assumptions that advanced well development will adversely affect water supply. However, according to a report developed for the Department of Energy by ALL Consulting, "Estimates of peak drilling activity in New York, Pennsylvania, and West Virginia indicate that maximum water use in the Marcellus, at the peak of production for each state, assuming 5 million gallons of water per well, would be about 650 million barrels per year. This represents less than 0.8 percent of the 85 billion barrels per year used in the area overlying the Marcellus Shale in New York, Pennsylvania, and West Virginia." Moreover, there remains a significant question over whether the demand for water differs substantially from one advanced well that uses horizontal drilling and segmented fracturing compared to the demand for water if multiple simpler wells were drilled. Finally, in the Marcellus there has been an extensive shift to recycling the water used to limit the demand on water acquisition. Ultimately, there is no justification to suggest that water supply needs associated with oil and natural gas development pose a different threat to supply than any other use of the resource. Consequently, it should not be part of the scope of this study.

The draft SAB Review emphasizes the importance of utilizing a risk based approach but then defines a focus that is inappropriate:

The SAB recommends that EPA focus on potential human exposure, followed by hazard identification if sufficient time and resources are available. The SAB anticipates that the primary opportunity for human health exposure is likely to be through surface waters, and recommends that EPA's first order human health exposure assessment focus on surface water management of flowback and produced waters, and disposal of treated waste water.

While SAB appears to have concluded with accuracy that the regulatory structure managing fluid movement from well bores protects drinking water sources, its focus on surface management is too broad. As stated earlier, the SAB needs to distinguish between fracturing related management issues and those related to produced water management. Consequently, waste water treatment issues are a limited subset of concerns for managing fracturing fluids. The SAB may be responding to the waste water issues associated with the discharge of produced water through POTWs that has been profiled in the Marcellus Shale. This issue is limited not only geographically but is being addressed under the Clean Water Act. In May 2010, the Pennsylvania Department of Environmental Protection issued new regulations that require pretreatment of produced water sent to a POTW. Recently, it further restricted any use of POTWs for waste water from the Marcellus. Outside of the Marcellus Shale formation, produced water is typically managed under the SDWA Class II UIC program. Most importantly, however, the POTW issue relates to produced water discharge to the surface under the Clean Water Act regulatory process; it is not a part of hydraulic fracturing.

The draft SAB Review further loses focus as it dwells on chemical composition issues. For example, it recommends that EPA:

Include the following constituents in EPA's analysis of impacts of water acquisition and other HF processes on water quality: hydrogen sulfide, ammonium, radon, iron, manganese, arsenic, selenium, total organic carbon, and bromide, in addition to HF fluid constituents and formation chemicals. EPA should also assess the potential of constituents in HF-impacted waters to form disinfection by-products during drinking water treatment.

Once again setting aside whether some of the issues are even hydraulic fracturing related, most of the identified chemicals are related to waste water discharges not water treatment associated with the fracturing process. Diverting important funds from the need to determine risks toward unneeded chemical analysis does not serve the study's purpose. Unfortunately, what the draft SAB Review fails to recommend is an active role for the state regulators in working to facilitate a clear understand of the existing regulatory management of the risks associated with hydraulic fracturing and drinking water. This omission is telling. For EPA to effectively assess the potential for human exposure, it must assess it in the context of the realistic pathways and how those pathways are protected. As we have stated in our early comments, Congress directed EPA to consult with the regulators but the draft study fails to aggressively seek their involvement.

One area where the draft SAB Review is particularly confusing involves its recommendations regarding the use of case studies compared to the acquisition of new information. Our reading of the draft SAB Review concludes that the SAB would encourage two actions by EPA that we believe diminish both the value and the acceptability of a study. First, we remain convinced that there is little to be gained by EPA revisiting prior incidents that have already been investigated. The data that existed for these incidents have been reviewed and analyzed at the time of the event. Having EPA reopen the investigation does not result in a broader view; it just creates potential uncertainty. Moreover, a focus on past incidents creates the perception that those incidents are typical events when they are, in fact, anomalies that do not reflect the thousands of hydraulic fracturing jobs that do not even raise a suggestion of a problem. Additionally, our reading of the SAB recommendations suggests that it would shift the focus of the study from prospective sampling and analysis to a literature based review of published information. Such an approach was used by EPA in its 2004 study. While those results were sound, the genesis for this study was the aggressive and egregious mischaracterization of that study by professional environmental advocacy organizations. Consequently, while such an approach would likely provide a useful analysis, its political receptivity would be highly questionable.

We believe that it is important that the study itself be both scientifically sound and appropriately structured. We agree that EPA should incorporate standard risk assessment and characterization methodologies into this study to ensure possible impacts are considered and to enable decision-makers to quantify and better respond to any risks that are identified. Consequently, the study design needs to reflect the regulatory structures that already effectively manage the environmental risks of the fracturing process. Most importantly, however, the SAB needs to narrow the scope of the EPA study to assure that it addresses hydraulic fracturing and drinking water. The current draft study design and the draft SAB Review do not produce a study that is appropriately focused and affordable with the limited resources available to conduct it.

We appreciate the opportunity to provide input to the development of the EPA Research Study and will continue to participate in its execution. If additional information is required, please contact Lee Fuller

Sincerely,

Lee O. Fuller