



John Satterfield
*Director Regulatory
Affairs – Southern
Division*

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

Re: Comments of Chesapeake Energy

*Science Advisory Board's Draft Report on the Environmental Protection Agency's Draft
Hydraulic Fracturing Study Plan*

Dear Mr. Hanlon:

Chesapeake Energy (Chesapeake) appreciates this opportunity to comment on the Science Advisory Board's (SAB) draft review (SAB Review) of EPA's Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources (Draft Study Plan) dated April 28, 2011.

Chesapeake is the second-largest producer of natural gas, a Top 20 producer of oil and natural gas liquids and the most active driller of new wells in the U.S. Headquartered in Oklahoma City, the company's operations are focused on discovering and developing unconventional natural gas and oil fields onshore in the U.S. Chesapeake owns leading positions in the Barnett, Haynesville, Marcellus and Bossier natural gas shale plays and in the Eagle Ford, Granite Wash and various other unconventional liquids-rich plays across the country.

Chesapeake has a vested interest in ensuring sound scientific and non-bias research is utilized during the Study, and, therefore, has provided comments that we believe will assist in accomplishing this goal. Based on the review of the SAB Review, Chesapeake offers the following comments.

General Comments

- There is a concern that the limitation on the Study could compromise the quality of research if the scope is not appropriate. Chesapeake supports SAB's recommendation that the Draft Study Plan should be narrowed and focused given the limited budget and time frame.

- Chesapeake is concerned with some of the language used in the SAB Review and references in the Draft Study Plan that could be considered to show bias against the oil and gas industry and predetermined conclusions.
- Chesapeake supports the SAB's recommendation to "carefully consider the quality of various types of data that would be used within the analysis (industry data, local and non-industry data)." However, Chesapeake suggests expanded this recommendation to include the quality of all aspects of the Study. For example, not only should input data for a model be of interest, the quality of the model and analysis are equally important, and should be subject to peer review.

Water Use in Hydraulic Fracturing

- Chesapeake believes it is important to reiterate water use and development is primarily the responsibility of the states and their political subdivisions. State legislatures and courts have developed laws and regulations over the years to regulate allocation of water within their borders. In those instances where water resources flow through or are available to multiple states, interstate compacts, commissions, or other similar organizations have been formed to cooperatively and successfully manage these resources.

The SAB Review, like the Draft Study Plan, appears to ignore states water rights, and in doing so appears to support a prioritization of beneficial uses that may be totally contrary to existing state laws, historic state agreements, and may impact private property rights. The SAB Review failed to bring to the EPA's attention the water management strategies and regulations that have developed over the years in state water plan processes.

Research Questions

- Chesapeake agrees that data acquisition, analysis, management, and storage are significant and should be incorporated into the Study.
- Chesapeake agrees that it is important to assess and report uncertainty associated with the research Study.
- Chesapeake questions including environmental justice and cumulative community impact into the scope of the Study because it is believed to be beyond the Congressional request and contradictory to the SAB recommendation to conduct a well-focused Study. If indeed these questions must be addressed,

then the focus should remain only on potential impacts to drinking water resources as defined by the original Congressional directive and keeping with the SAB recommendations.

Proposed Research Activities

- Water Acquisition
 - Chesapeake disagrees with the SAB's recommendation to expand the definition of "drinking water resources" because it beyond the authority of the Study to change this definition.
 - Chesapeake believes it is important to distinguish between natural and hydraulic fracturing constituents.
 - Chesapeake believes that although drinking water maximum contaminant levels (MCLs) offer one option for evaluative criteria, concerns which are relate to surface water resources should be evaluated with appropriate surface water quality criteria based on designated use. In addition, MCLs are not available for all indicator chemicals which have been identified, therefore, other appropriate benchmark values should be used.
- Chemical Mixing
 - Chesapeake recommends caution when relying on existing data because the industry is continuously adopting "greener" chemicals used during hydraulic fracturing, and focusing on historic data may not capture the current industry practices. Chesapeake would recommend referencing the Ground water Protection Council and Interstate Oil and Gas Compact Commission's Frac Focus website (www.fracfocus.org).
 - Chesapeake agrees that an in-depth study of toxicity, the development of new analytical methods and tracers are not practical given the budget and schedule limitation of the Study. Chloride and divalent cations have already been demonstrated as reliable indicators for the presence of produced water.
- Flowback and Produced Water
 - Chesapeake agrees that it is important to define and differentiate flowback and produced water, and offers the following recommendations:

- Produced water - All water that is returned to the surface through a well borehole.
- Flowback water – A term used for produced water associated with the process of flowback.
- Chesapeake agrees that a risk assessment framework analysis should be used to assess and prioritized research activities given the limitation on the Study.
- Chesapeake disagrees with the SAB's recommendation to assess air impacts and chemical transportation because it is not within the scope of Congress' charge.
- Well Injection
 - Chesapeake disagrees with the SAB's recommendation to expand the study to assess risk other than those directly related to drinking water resources (e.g., earthquake should be considered out of scope).
 - Chesapeake is unclear as to the SAB's stance on the inclusion of well construction practice into the Study. Conflicting statements were identified in the Draft Review.
- Wastewater Treatment and Waste Disposal
 - Chesapeake believes there was unjustified emphasis on the surface disposal of produced wastewater to treatment plants in the SAB's Review. The quantity of produced water disposed of in POTW is relatively small, a local issue and currently being phased out throughout the industry. A majority of the produced water is injected in underground formations regulated under the Safe Drinking Water Act.
 - Chesapeake disagrees with SAB's recommendation to conduct a watershed study because it is beyond the Congressional request and unrealistic that such an effort could be completed given the Study limitations.

Research Outcomes

- Chesapeake agrees that the value of the water acquisition research is unclear.
- Chesapeake agrees that the frequency and severity of well failures could add value to the Study, however, it is important to distinguish failures that are

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associated with hydraulic fracturing and those that are not to keep within the Congressional directive.

- Chesapeake agrees that the determination of likelihood associated with surface spills is highly site specific and will not be quantifiable with a simple general mode of failure.

Chesapeake is prepared to expand on or provide further explanation regarding these comments as appropriate. Again, we appreciate this opportunity to provide comments on this very important study effort.

Respectfully,

Chesapeake Energy Corporation

John A. Satterfield