



THE ADMINISTRATOR OF THE ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

JAN 18 2017

Peter S. Thorne, Ph.D.  
Chairman  
Science Advisory Board  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue, NW  
Washington, D.C. 20460

Dear Dr. Thorne:

I want to thank you, the members of the Science Advisory Board and the members of the SAB Hydraulic Fracturing Research Advisory Panel for the detailed and thorough review of the U.S. Environmental Protection Agency's draft report, *Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources*. The SAB's review of this draft report provided comments that our scientists used to clarify and strengthen the final report, *Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States*, which was released in December 2016. Our detailed response to the SAB's comments is available in a separate document at [www.epa.gov/hfstudy](http://www.epa.gov/hfstudy). I have highlighted below major changes in the EPA's final report.

The SAB expressed concerns regarding the clarity and adequacy of support for several major findings presented in the draft report. Of particular concern to the SAB and members of the public was the sentence, "We did not find evidence that these mechanisms have led to widespread, systemic impacts on drinking water resources in the United States." The EPA's scientists carefully considered the SAB's recommendation to provide quantitative support for this sentence and concluded that they could not do so given the existing data gaps and uncertainties. Additionally, as noted by the SAB, the sentence was interpreted by readers and members of the public in many different ways, which showed that it did not clearly communicate the findings of the draft report. For these reasons the sentence was not included in the final report.

The SAB also encouraged us to better recognize the importance of local impacts on drinking-water resources from activities in the hydraulic fracturing water cycle. In the final report, we highlight the local nature of cases of identified impacts and illustrate the range of severity of impacts, from temporary changes in water quality to contamination that made private drinking-water wells unusable. The final report also emphasizes that the frequency and severity of impacts on drinking-water resources depend on the combination of hydraulic fracturing water cycle activities and local- or regional-scale factors.

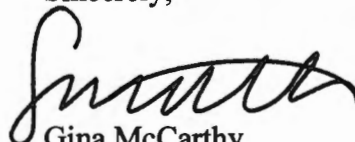
Finally, the SAB recommended that we revise the draft report to make it more suitable for a broad audience. In particular, the SAB suggested that the report's executive summary be targeted to the public. In response to these comments, we have rewritten the executive summary to clearly state the goals and scope of the report, define activities in the hydraulic fracturing water cycle and link statements of major findings to observations and data that support those findings. We have also included multiple text boxes

and figures that illustrate key concepts, which will enhance the public's understanding of hydraulic-fracturing activities and operations. The executive summary of the final report is available as a separate document on our website.

We first engaged the SAB in 2010 when we asked you to review the initial design for our research study of the relationship between hydraulic fracturing and drinking-water resources. During the past six years, the SAB reviewed the draft study plan, provided feedback on the progress report, was briefed on new and emerging information related to hydraulic fracturing and reviewed the draft report. Throughout this multi-year process, the SAB made a special effort to hear from members of the public and to carefully consider their comments.

The EPA's final report advances the science of what we know about the impacts on drinking-water resources from activities in the hydraulic fracturing water cycle. The report provides a strong scientific foundation that state and local decision makers can use to protect drinking-water resources – and ultimately public health – in areas where hydraulic fracturing occurs or is being considered. This is one of the most impactful reviews that the SAB has ever done, and I appreciate your hard work. Your advice was essential in helping the EPA address this complex and challenging topic. The thoughtful contributions of the SAB helped ensure that the EPA's science was strong, defensible and unbiased. I thank you for your efforts.

Sincerely,



Gina McCarthy



THE ADMINISTRATOR OF THE ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

JAN 18 2017

David A. Dzombak, Ph.D.  
Chairman  
Science Advisory Board Hydraulic Fracturing Research Advisory Panel  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue, NW  
Washington, D.C. 20460

Dear Dr. Dzombak:

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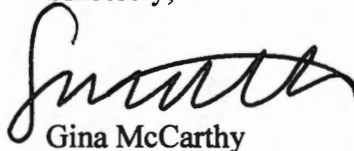
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Sincerely,

A handwritten signature in black ink, appearing to read "Gina McCarthy", written in a cursive style.

Gina McCarthy