



**EPA Science Advisory Board
Hydraulic Fracturing Research Advisory Panel
Public Meeting October 28, 2015**

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Public Statement to EPA's Science Advisory Board regarding *Draft Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources*

I want to thank the EPA for completing this document and all of the internal and external contributions and hours of work that was invested into making the document available to the public. I want to thank EPA for organizing the Science advisory board, or SAB, and allowing for public input into this issue. Many of you are traveling to Washington DC, miles away from your other responsibilities, careers, and families, and your time is greatly appreciated here today.

My name is Lance Larson. I'm currently a post-doctoral fellow with the Natural Resources Defense Council or NRDC, here in Washington DC. NRDC is a nonprofit advocacy organization, comprised of roughly 2 million activist and online members, whose objective is to safeguard the Earth: its people, its plants and animals and the natural systems on which all life depends. Prior to my post-doc position at NRDC, I earned a Ph.D. in Environmental Engineering and Biogeochemistry where I published multiple peer-reviewed publications and presented research at domestic and international geochemistry conferences.

The first point I wanted to make has been raised by others. In NRDC's written comments to EPA, we have raised significant issues with the conclusions drawn from EPA's assessment. Specifically, EPA reports that "We did not find evidence that these mechanisms have led to widespread, systemic impacts on water resources in the United States." EPA has not clearly defined or quantified what would constitute as 'widespread' or 'systemic' impact, nor has EPA attempted to justify how the underlying data and analysis would or could support such conclusion. As reviewers for a journal, when a manuscript's conclusion or abstract are not supported by the data, the manuscript is rejected or sent back to the author for revisions. Similarly, NRDC recommends that the SAB ask EPA to clarify, modify, or remove these conclusory statements based on the available data.

Closely related to my first point, there is a sizable data gap regarding our understanding of the spatial and temporal impacts to water quantity and quality. EPA's assessment inadequately accounts long-term impacts to groundwater supplies. The transport of contaminants, especially in groundwater, is extremely complex and could take decades to impact a potential drinking water source. Furthermore, the potential impacts to water supplies in the future from failed well casings are highly uncertain. We encourage SAB to recommend to EPA to invest significant resources into future research, monitoring, data collection, and modeling which could fill in these knowledge gaps. Furthermore, a yearly update or amended assessment could help improve the knowledge and potential issues as they become available.

In summary, many parts of the United States already burdened with drought and diminishing fresh water supplies are turning increasingly to groundwater. Many principle aquifers are extremely stressed with over-extraction, and groundwater use is predicted to



increase. NRDC interprets the findings in EPA's assessment to confirm that hydraulic fracturing activities pose a range of risks to human health and to an unknown quantity of surface and groundwater supplies. We encourage EPA, through the SAB, to continue to fill the gaps in data to quantify and adequately assess these risks, both now and in the future.