Zimmerman & Associates

Environmental Litigation, Mediation, Enforcement & Compliance, Counseling

August 28, 2015

By Electronic Mail

Dr. Jeffrey Frithsen
National Center for Environmental Assessment
Office of Research and Development
U. S. Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460

Re: Comments on *Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources, (May, 2015 External Review Draft, EPA/600/R-15/047;* Docket ID No. EPA-HQ-OA-2015-0245

Dear Dr. Frithsen:

On behalf of my clients, Damascus Citizens for Sustainability, Inc., NYH2O Inc., and Citizens for Water, I am submitting the comments that follow on the external review draft of the report entitled *Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources.* We have participated in the public meetings of the EPA Science Advisory Board on each aspect of this study since the first scoping meetings and anticipate presenting a statement during the public comment portion of the SAB meeting scheduled for October 28 – 30, 2015.

Our initial objection to the draft assessment report relates to the conclusion stated in the Executive Summary regarding above and below ground mechanisms by which hydraulic fracturing activities have the potential to impact drinking water resources. The Executive Summary concludes that (pg.ES-6):

> "We did not find evidence that these mechanisms have led to widespread systemic impacts on drinking water resources in the United States. Of the potential mechanisms identified in this report, we found specific instances where one or more mechanisms led to impacts on drinking water resources, including contamination of drinking water wells. The number of identified cases, however, was small compared to the number of hydraulically fractured wells."

Section 10.3 "Conclusions" in the full report begins with the statement concerning "widespread systemic impacts", but goes on to summarize the findings of the study as follows (pgs. 10-19 and 10-20):

> "Of the potential mechanisms identified in this report, we found specific instances where one or more of these mechanisms led to impacts on drinking water resources, including contamination of drinking water wells. The cases occurred during both routine activities and accidents and have resulted in impacts to surface or ground water. Spills of hydraulic fracturing fluid and produced water in certain cases have reached drinking water resources, both surface and ground water. Discharge of treated hydraulic fracturing wastewater has increased contaminant concentrations in receiving surface waters. Below ground movement of fluids, including gas, most likely via the production well, have contaminated drinking water resources. In some cases, hydraulic fracturing fluids have also been directly injected into drinking water resources, as defined in this assessment, to produce oil or gas that co-exists in those formations."

This Conclusion statement from Chapter 10 of the full report is a far more accurate and fair statement of the findings of the study and should replace the "widespread systemic impacts" statement in the Executive Summary. Most reviewers will only read the Executive Summary portion of the report and never get to the complete Conclusions discussion over 500 pages after the Executive Summary.

Frankly, the statement that EPA did not find evidence of widespread systemic impacts on drinking water resources is inconsistent with the findings on each of the research questions as discussed above in Section 10.3 of the study. It is inappropriate to try to minimize the conclusions in Section 10.3 by attempting to contrast the incidents where drinking water resources have been impacted against the large number of wells nationwide that have used hydraulic fracturing. The scope of this study is whether hydraulic fracturing has had or may have impacts of drinking water sources. The answer is clearly "Yes," as discussed in the study chapters on water acquisition, chemical mixing, well injection, flowback and produced waters, wastewater treatment, and waste disposal.

Moreover, nowhere does EPA define what system it is addressing when it states that it did not find evidence of "widespread systemic impacts." Clearly, EPA did not intend to define "widespread" in a geographic sense, as the impacts to drinking water resources discussed in the study are from eighteen states as far west as Utah, as far east as New York, and stretching from the Canadian border to Mexico. Obviously the impacted areas are geographically widespread. On the other hand, EPA leaves it entirely to the reader to decipher what is meant by "systemic."

We would be remiss if we failed to mention in these comments that EPA has intentionally excluded from any mention in the draft study report of three well known instances of drinking water resource contamination by oil and gas development using hydraulic fracturing. These

three sites are in the Dimock, PA area; the Pavillion, WY area and the southern Parker County, TX area. In each of these instances, the linkage of drinking water contamination with hydraulic fracturing was so clear that EPA had taken various steps toward enforcement action, but then abruptly reversed itself and left any further action to the states. These three sites are effectively the "poster children" for this study. We urge the agency to acknowledge and deal openly and completely with the information from these three contamination incidents in this study. Otherwise, the integrity of this study will forever be in question just as the politically motivated rewrite of the conclusions in EPA's 2004 study of the drinking water impacts of hydraulic fracturing in coal bed methane resources has effectively discredited that entire study.

Nowhere in the research questions for the study is there direction to ignore drinking water resource impacts if those impacts are from a limited number of wells. For instance, the study finds in Chapter 7 on the occurrence and impacts of spills of flowback fluids and produced waters that (pg. 7- 46):

> "Surface spills of flowback and produced water from unconventional oil and gas production have occurred across the country. Some produced water spills have affected drinking water resources, including a few private drinking water wells. The majority of flowback and produced water spills are under 1,000 gallons. The causes identified for these are container and equipment failures, human error, well communication, blowouts, pipeline leaks, and illegal dumping."

Similarly, the Chapter 6 review of wells that have lost integrity and allowed contamination to impact drinking water resources finds such problems in several areas across the country, including sites in Colorado, Utah, Texas, Ohio and Pennsylvania. In some instances such as the Bainbridge, Ohio, area, a single oil and gas well that was improperly cemented allowed migration of gas and flowback and produced water into a home that then exploded and ultimately the contamination of 26 drinking water wells. Also in the category of failed wells are over 250 positive determination letters in which the Pennsylvania Department of Environmental Protection (PADEP) finds that oil and gas development has contaminated one or more drinking water wells. In some of these cases, the agency issued a single "Consent Agreement" or "Consent Order" covering an area, a community or a mapped section of a community. Others included dozens of gas wells operated by the same company, resulting in many more contaminated water sources at these sites than reflected in the number of positive determination letters. Incidentally, and for the record, PADEP just announced fines and remediation orders

against three gas company operators involving 13 drinking water wells that had been contaminated by the gas well activities. A copy of the PADEP press release is available at http://www.portal.state.pa.us/portal/server.pt/community/news_releases/14288 The latest tabulation of PADEP Determination Letters (with 260 entries) dated August 6, 2015 is available at http://files.dep.state.pa.us/OilGas/BOGM/BOGMPortalFiles/OilGasReports/Determination_Letters/Regional_Determination_Letters.pdf

While the external review draft assessment report addresses many instances of drinking water resource impacts that result in violations of drinking water standards, the study report is devoid of any discussion of health impacts caused by these contamination situations. This is perhaps the most serious oversight of the draft report and should be corrected by examining these public health issues in depth before publishing a final report. We are submitting with these comments two links to compendiums of information on health impacts associated with unconventional oil and gas development using hydraulic fracturing. Each of these compendiums is periodically updated and the latest version should be obtained: http://concernedhealthny.org/wp-content/uploads/2014/07/CHPNY-Fracking-Compendium.pdf, and http://www.psehealthyenergy.org/site/view/1180.

Also, we are submitting a copy of a recent report by Hildenbrand, et al., entitled, *A Comprehensive Analysis of Groundwater Quality in the Barnett Shale Region*, published in Environmental Science & Technology on June 16, 2015. This study presents the results of 550 groundwater samples taken from private and public water supply wells in thirteen counties in the Barnett Shale region of north Texas. This study found numerous volatile organic compounds such as benzene, toluene, ethylbenzene, xylene, cyclohexane, and dichloromethane. While noting that many of these compounds are often found in flowback and produced waters from unconventional oil and gas development, the study did not attempt to correlate its results with data from oil and gas activity.

Thank you for the opportunity to submit these comments on the external review draft report. If you have any questions concerning these comments or the attached material, please contact me at your convenience by email to zimmermanjj@verizon.net or by telephone at (240) 912-6685.

Respectfully submitted,

s/s J. J. Zimmerman
Jeff Zimmerman

cc: Ed Hanlon

Attachment: *Hildenbrand, et al., "A Comprehensive Analysis of Groundwater Quality in the Barnett Shale Region"*