**Comments to**
**U.S. Environmental Protection Agency**
**Science Advisory Board**
**on**

**Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources**

**Prepared by the**
**American Water Works Association**

Thank you for the opportunity to provide comments regarding EPA's Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources.

My name is Cynthia Lane and I am here on behalf of the American Water Works Association or "AWWA". AWWA is an international, nonprofit, scientific and educational society dedicated to the improvement of drinking water quality and supply. AWWA's membership includes more than 55,000 members and 4,000 utility members that supply roughly 80 percent of the nation's drinking water.

Hydraulic fracturing is increasing at a rapid rate in many areas of the country, and AWWA and its member utilities want to ensure that source water protection is the highest priority when evaluating all of the factors surrounding hydraulic fracturing. We are extremely supportive of the decision to examine the full lifecycle of water in the hydraulic fracturing process. Each stage of the process poses significantly different pathways for drinking water contamination and it is extremely important that each one is evaluated thoroughly as part of this study. However, the described pathways only examine impacts from the standpoint of the water used in the fracturing process. Impacts on existing water resources can only be ascertained by properly designed monitoring programs. One element of the study plan should be the definition of a minimum monitoring program to address the collection of water quality information to determine when an existing aquifer had been impacted by the hydraulic fracturing activity.

We have often heard that there is no evidence of hydraulic fracturing contaminating community water systems. While that may have been the case in the past, it may not be the case today. Today, it appears that at least some surface water systems in Western Pennsylvania may be impacted by hydraulic fracturing in the Marcellus Shale region. Evidence to the contrary will be presented for the first time at the Annual Conference of the Pennsylvania Section-AWWA in Hershey, Pennsylvania on April 21st.

Monitoring data from community water systems in this region shows a linkage between hydraulic fracturing and drinking water contamination. Bromide concentrations in the Allegheny River have

steadily increased since the inception of hydraulic fracturing activities in the region, and now, several water systems that use this river as their source of drinking water have reported increased levels of disinfection by-products (DBPs), including increased concentrations of brominated DBPs (considered to be more toxic compared to chlorinated DBPs). Several utilities along the Allegheny River and neighboring Beaver River are now in violation of the Stage I DBP Rule and have had to notify their customers of the violation. These are utilities that did not have compliance problems prior to hydraulic fracturing in the Marcellus Shale region. A number of other utilities are concerned that elevated bromide concentrations in the source water may impair their ability to comply with the more stringent requirements of the Stage 2 DBP Rule which goes into effect in April 2012. The principal investigator of this study intends to complete a full year of the monitoring, perform the data analysis, and then submit his research to a peer-review journal for publication. Additionally, these preliminary findings indicate a potential opportunity for a retrospective case study and suggest revisions to the Study Plan to include this contamination event.

We would like to offer specific comments on Section 6.5 of the Study Plan. This section discusses the potential impacts of inadequate treatment of hydraulic fracturing wastewaters (e.g., flowback and produced water) on drinking water resources. Some of those impacts are described in the Plan, including the increased presence of bromide and chloride leading to both an increase in lead and copper corrosion as well as the formation of brominated disinfection by-products. However, the proposed research activities are focused on wastewater treatment methods, with only limited bench-scale studies addressing impacts on drinking water resources. Furthermore, only prospective case studies are part of the proposed research activities. Given that the potential research outcomes of Section 6.5 do not list any specific outcomes related to drinking water treatment, AWWA suggests that EPA look to some of the community water systems in Western Pennsylvania to develop a retrospective case study of the impacts of untreated and/or partially treated wastewater from the hydraulic fracturing process on drinking water systems. Additionally, given that prospective case studies focus only on the efficacy of the treatment and disposal of hydraulic fracturing wastewater, AWWA suggests that these case studies be expanded to address these impacts of inadequately treated wastewater on drinking water providers. It will be extremely important for these case studies to examine these impacts as they may contribute to drinking water utilities not being able to meet the more stringent requirements of the Stage 2 DBP Rule.

In summary, AWWA supports protecting sources of drinking water under any and all circumstances, including hydraulic fracturing. We appreciate the agency's consideration of our comments.