WRITTEN TESTIMONY

Paul Anastas, PhD
Assistant Administrator for Research and Development
U.S. Environmental Protection Agency (EPA)

HEARING ON
The Office of Research and Development Research Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources
Before the
U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE, SPACE AND TECHNOLOGY
May 11, 2011

Good morning Chairman Hall, Ranking Member Johnson, and other members of the Committee. My name is Paul Anastas**.** I am the Assistant Administrator for Research and Development (ORD). It is a pleasure to be here with you this morning to discuss the EPA Office of Research and Development's Research Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources.

In its FY2010 Appropriations Committee Conference Report, Congress directed EPA to study the relationship between hydraulic fracturing and drinking water. In response to this request, and interest by stakeholders, EPA is undertaking a study to understand the potential impacts of hydraulic fracturing on drinking water resources. As Congress requested, the study will use the best available science and independent sources of information. We will undertake the study using a transparent, peer-reviewed process and will consult with stakeholders throughout the study. Produced responsibly, natural gas has the potential to reduce green house gas emissions, stabilize energy prices, and provide greater certainty about the future energy reserves.

The study is designed to examine the conditions that may be associated with the potential contamination of drinking water resources, and to identify the factors that may lead to human exposure and risks. The scope of the proposed research includes the full lifespan of water in hydraulic fracturing, from acquisition of the water, through the mixing of chemicals and actual fracturing, to the post-fracturing stage, including the management of flowback and produced

water and its ultimate treatment and disposal, an approach EPA's Science Advisory Board (SAB) agreed was appropriate in their June 2010 review.

EPA recognizes that there are important potential research areas related to hydraulic fracturing other than those involving drinking water resources, including effects on air quality, aquatic and terrestrial ecosystem impacts, seismic risks, occupational risks, and public safety concerns.

The SAB reviewed the draft plan on March 7-8, 2011. Consistent with the operating procedures of the SAB, an opportunity was provided for the public, including affected stakeholders, to provide comments for the SAB to take into account during their review. The Agency will consider all of the public comments, revise the study plan in response to the SAB's report and begin full implementation of the plan. A first report of research results is expected by the end of 2012. Certain portions of the work will be longer-term projects that are not likely to be finished at that time. An additional report of study findings will be published in 2014 after these longer-term projects are completed.

We are now in the final stages of evaluating and selecting candidate field locations for retrospective and prospective case studies. Retrospective case studies provide an opportunity to investigate instances where concerns about drinking water have been reported, and to determine whether and to what extent any impacts may be associated with hydraulic fracturing. Prospective case studies will allow us to observe modern hydraulic fracturing practices and gather data uniquely available during this process, such as samples of flowback and produced water.

In addition to case studies, our research will include analysis of data from many sources, including industry and the states, along with laboratory studies and modeling to assess a range of conditions under which hydraulic fracturing takes place.

Stakeholder Input

Stakeholder input has played, and will continue to play, an important role in the hydraulic fracturing study. We have implemented a strategy that engages stakeholders and technical experts in dialogue and provides opportunities for input on the study scope and case study locations. We have held webinars with stakeholders, including representatives from 21 states as

well as the Association of State Drinking Water Administrators, the Association of State and Interstate Water Pollution Control Administrators, the Ground Water Protection Council, and the Interstate Oil and Gas Compact Commission. In addition, we have held webinars with representatives from industry and from non-governmental organizations (NGOs) to discuss the public engagement process, the scope of the study, coordination of data sharing, and other key issues. Overall, webinar participants have included 176 individuals from various natural gas production and service companies and industry associations, as well as 64 individuals from NGOs.

EPA held public information meetings between July and September, 2010, in Fort Worth, Texas; Denver, Colorado; Canonsburg, Pennsylvania; and Binghamton, New York. At these meetings, EPA presented information on the Agency's reasons for studying hydraulic fracturing, an overview of what the study might include, and how stakeholders could be involved. Opportunities to present oral and written comments were provided. Total attendance for all of the information public meetings exceeded 3,500, and more than 700 oral comments were heard. EPA also provided stakeholders with opportunities to submit electronic or written comments on the hydraulic fracturing study and received over 5,000 comments.

In February and March 2011, EPA held a series of four technical workshops with experts from industry, academia and others to discuss chemical and analytical methods, well construction and operations, fate and transport, and water resource management. More than 160 experts from industry and academia participated in these workshops. The information shared during these workshops will be very useful to EPA in the conduct of the study. In the interest of transparency, the agendas, presentations, and proceedings will be posted on EPA's web site.

As the research progresses and results become available, we will engage stakeholders by providing updates and receiving input on technical issues of concern.

Coordination with Other Federal Agencies

EPA has been actively consulting with several key federal agencies regarding research related to hydraulic fracturing. We have met with representatives from the Department of Energy (DOE), including DOE's National Energy Technology Laboratory; the US Geological Survey; the US Army Corps of Engineers; and other agencies to identify opportunities for collaboration and leveraging of resources. Federal agencies have also commented on the draft study plan through an interagency review process.

Scientific Integrity

As noted in EPA's draft study plan, all EPA-funded research projects, whether conducted by EPA scientists or extramural cooperators, will comply with the most rigorous level of the Agency's Quality Assurance (QA) requirements. This will include, for example, technical system audits, audits of data quality, and data quality assessments; performance evaluations of measurement systems; and QA review of products. The scientific integrity of our research will be further ensured through the peer review of our research results.

Conclusion

In conclusion, I want to assure the Members of this Committee and others that this study will be conducted through a transparent, peer-reviewed process in consultation with other federal agencies as well as appropriate State and inter-state regulatory agencies.

I look forward to working with the Committee to address current and emerging environmental problems that will help our Agency protect the environment and human health. Thank you for the opportunity to appear before you today.