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EPA's Study of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources: Water Acquisition

Background

The EPA examined the balance between water supply and demand associated with hydraulic fracturing operations in the Susquehanna River basin in the eastern U.S., and the Upper Colorado River basin in Colorado in the western U.S. Researchers compared the volume of water consumed for hydraulic fracturing operations to the volume of water available at the two designated study areas to better understand the quantity and sources of water use. The study also examined how water withdrawals may affect short- and long-term water availability in areas experiencing high rates of hydraulic fracturing. The EPA used information on water use, water management, geologic conditions, and hydraulic fracturing engineering practices in the two areas to perform the analysis.

Results

The study found that neither the Susquehanna River basin in Pennsylvania, nor the upper Colorado River basin are currently experiencing imbalance from water withdrawals directly from hydraulic fracturing operations. These similar outcomes occurred due to different water user demands, water management practices, geologic conditions, and hydraulic fracturing operations in the two areas.

The Susquehanna River basin appears to have abundant water supplies, and hydraulic fracturing operations do not currently pose a challenge to public water supply. Additionally, water management practices in the Susquehanna River basin are effective in reducing vulnerabilities in small streams.

Unconventional oil and gas production in the Upper Colorado River basin uses little freshwater and relies mostly on the reuse of flowback and produced water. Hydraulic fracturing operations in the study area do not use municipal drinking water supplies.

Study Limitations

The study demonstrated that a number of local factors are very important to whether water imbalances occur generally or at local sites. With only two river basins under study, the contributing factors such as climate, geology, water management, and water sources could only be partially explored. Future scenarios of water use and availability are also difficult to develop due to changes in industry practices and emerging technologies.

Overview of the EPA's *Assessment of Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources*

The EPA released a draft assessment of the potential impacts of oil and gas hydraulic fracturing activities on the quality and quantity of drinking water resources in the United States. The draft assessment is based upon extensive review of literature, results from EPA research projects, and technical input from state; industry; non-governmental organizations; the public; and other stakeholders. As part of this effort, EPA researchers compared the balance between water taken for hydraulic fracturing activities relative to the amount of water available at the local sources where it is acquired.

For more information, please visit: www.epa.gov/hfstudy
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