

## EPA's Plan for Hydro-fracking Study Up for Review

*Comment deadline February 28*

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*Broader View Weekly*, February 17, 2011

Last spring Congress directed the U.S. Environmental Protection Agency (EPA) to conduct a second study on the process of hydraulic fracturing. Not only does the initial study, conducted in 2004, focus on fracking in coal-bed methane but it was heavily criticized by scientists. Data proving that benzene and other toxic chemicals could migrate into groundwater far from drilling activities never made it into the final report, they said.

The most outspoken critic has been EPA scientist and whistle-blower Weston Wilson. At a forum last summer, he listed four major issues the 2004 study failed to address: preventing and mitigating chemical spills, potential leaks from frack fluid storage pits, mobilization of toxic materials present in the rock formation, and disposal of flowback and production waste fluids.

All of that information was in the original study, Wilson said. But heavy industry influence on the review panel suppressed the data from the final report. While applauding a new study, Wilson cautioned, "We need to make sure that science is done by those who do not have a financial interest in the industry."

Last week, following a summer of hearings and technical meetings, EPA submitted its draft study plan on hydraulic fracturing for review to the agency's Science Advisory Board (SAB). The SAB, a group of independent scientists, plans to review the draft the first week in March.

According to the 140-page draft, the new study will encompass the full lifespan of water in hydraulic fracturing. EPA is asking for data about everything from acquisition of the water, through the mixing of chemicals and actual fracturing to the post-fracturing stage. The study also includes the management of flowback and produced fluids or used water and its ultimate treatment and disposal.

Drillers across the country frack close to 35,000 wells each year, notes EPA. Assuming that most of these are horizontal wells, the Agency pegs total water use for hydro-fracking between 70 and 140 billion gallons – that's close to the amount of water used in 40 to 80 small cities (population 50,000) or a larger metropolitan area with up to 4 million people.

In their draft, EPA identifies several potential impacts from large volume water withdrawals including lowered water tables and decreased stream flows. These lower water levels can cause chemical changes to minerals, notes EPA, and those changes can affect the solubility and mobility of chemicals. Large volume water withdrawal from aquifers can also lead to surface subsidence.

EPA wants better information about potential impacts of surface spills of hydraulic fracturing chemicals. The total concentration of chemical additives to fracking fluid is small – only 0.5 to 2 percent of the total volume – but that translates into 15,000 to 60,000 gallons of chemicals injected into a well. Referring to the 400 fracking chemicals listed in the study's appendix, EPA notes that their list is not complete. Furthermore, they lack information on the "frequency, quantity and concentration of the chemicals used, which is important when considering the toxic effects of hydraulic fracturing additives."

EPA also notes that the American Petroleum Institute provided a description of industry practices relating to transportation, storage and handling of chemicals. "However," writes EPA, "the extent to which these practices are followed in the industry or what other practices may be used is unclear." This study, EPA says, will determine the toxicity and health effects associated with the chemicals used in fracking and also identify 10 to 20 chemical indicators to track the fate and transport of fracking fluids through the environment.

The study will also look more closely at the casing and cementing used to contain frack fluids and gases in the wellbore. In addition to improper well construction, EPA raises concerns about abandoned wells, drinking water wells, production wells, underground injection wells, mines, and “fluid leak” through natural fractures and faults. Unfortunately, EPA won’t be able to look at the impact of repeated fracturing over the lifetime of a well – no partners have stepped forward to help with the needed case studies.

EPA devotes a lengthy section of their study proposal to the waste fluid treatment and disposal. Publicly owned treatment works (POTWs) are not designed to treat hydraulic fracturing waste fluids, as large quantities of sodium and chloride damage the digesters and can leave high levels of total dissolved solids (TDS) in the effluent. POTWs are also not equipped to treat waste fluids containing radioactive elements, notes EPA. Furthermore, facilities that use chlorination in their treatment process will produce brominated byproducts that are associated with significant health concerns.

Even if companies reuse and recycle their returned fracking fluids, they still need to treat and properly dispose of the final, more concentrated wastes. EPA is concerned, too, about constituents from underground formations that are released into fracking fluids, and by degradation products of fracturing additives. Part of the study will investigate these byproducts in the lab.

In addition to the lab and field studies, EPA proposed three to five case studies in communities with possible drinking water contamination due to fracking operations, with another two or three in locations where they can conduct baseline studies prior to drilling and monitor key aspects of the fracturing process.

Once the Science Advisory Board has reviewed the study plan, EPA scientists and others will begin the research. EPA plans to publish an interim report of their findings in 2012.

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**To Comment on EPA Draft Study Plan:**

The EPA has posted their draft study plan at [www.epa.gov/hydraulicfracturing](http://www.epa.gov/hydraulicfracturing) and the deadline for submitting comments is February 28.

Send comments by email to: [hanlon.edward@epa.gov](mailto:hanlon.edward@epa.gov)

Mail comments to: Ed Hanlon, U.S. Environmental Protection Agency, Science Advisory Board Staff Office, Mailcode 1400R, 1300 Pennsylvania Avenue, NW, Washington, DC 20004.

If you cannot download a copy of the study or have problems obtaining Internet access, contact Ed Hanlon at the email address above or by phone at 202-564-2134.

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