EPA Science Advisory Board Meeting on Hydraulic Fracturing

Sierra Club Comments
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Core points

- Look at hydraulic fracturing as it is actually done
- Do not artificially limit the scope of the study
- Give communities the benefit of the doubt
- Control uncertainty with detailed regional analyses

A strong mandate

"The conferees urge the Agency to carry out a study on the relationship between hydraulic fracturing and drinking water, using a credible approach that relies on the best available science, as well as independent sources of information. The conferees expect the study to be conducted through a transparent, peer-reviewed process that will ensure the validity and accuracy of the data. The Agency shall consult with other Federal agencies as well as appropriate State and interstate regulatory agencies in carrying out the study, which should be prepared in accordance with the Agency's quality assurance principles."

Looking broadly

- Comments of the Waterkeeper Alliance, the Clean Water Network, NRDC, and others rightly emphasize the need to conduct a thorough life-cycle analysis of the cumulative impacts of hydraulic fracturing.

A chance to get it right this time

- "[D]ocuments obtained by ProPublica show that the EPA negotiated directly with the gas industry before finalizing [its] conclusions, and then ignored evidence that fracking might cause exactly the kinds of water problems now being recorded in drilling states."

-- Abrahm Lustgarten, *Buried Secrets: Is Natural Gas Drilling Endangering U.S. Water Supplies?,* Pro Publica (Nov. 13, 2008)

Look at fracking on the ground

- "Because of the potential for diesel fuel to be introduced into USDWs, EPA requested, and the three major service companies agreed to, the elimination of diesel fuel from hydraulic fracturing fluids that are injected directly into USDWs for CBM production (USEPA, 2003)."

--EPA's 2004 study

Look at fracking on the ground

- "'[U]nderground injection' . . . excludes . . . the underground injection of fluids or propping agents (other than diesel fuels) pursuant to hydraulic fracturing operations related to oil, gas, or geothermal production activities."

42 U.S.C. § 300h(d)(1)(B)(ii)

Look at fracking on the ground

- "Two of the world's largest oil-field services companies [Halliburton and BJ Services] have acknowledged to Congress that they used diesel in hydraulic fracturing after telling federal regulators they would stop injecting the fuel near underground water supplies."

--Mike Soraghan, "Two Oil-Field Companies Acknowledge Fracking With Diesel", Greenwire, New York Times (Feb. 19, 2010)

Look at fracking on the ground

- "Other Petroleum Distillates Used in Hydraulic Fracturing Can Contain 93 Times more Benzene than Diesel"

Dusty Howitt, *Drilling Around the Law,* Environmental Working Group (2009)

Look at fracking on the ground

- Over-stretched regulators
- Lax enforcement
- Wide variation in operator performance
- Significant regional differences
- Limited treatment capacity

Look at fracking on the ground

- Respond with:
- Surprise site visits
- Interviews and surveys of affected communities
- Analysis of state and federal enforcement capacity
- Analysis of scope and magnitude of noncompliance
- Detailed empirical monitoring and testing program

Look at fracking on the ground

- The “Primer” has significant biases.
- For instance:

A series of federal laws governs most environmental aspects of shale gas development.

State regulation of the environmental practices related to shale gas development, usually with federal oversight, can more effectively address the regional and state-specific character of the activities, compared to one-size-fits-all regulation at the federal level[162]. Some of these specific

releases that could have serious effects on human health and the environment. By the same token, hydraulic fracturing uses a number of chemical additives that could be hazardous, but are safe when properly handled according to requirements and long-standing industry practices. In addition, many of these additives are common chemicals which people regularly encounter in everyday life.

FRACTURING FLUID ADDITIVES, MAIN COMPOUNDS AND COMMON USES

Additive Type	Main Compound	Purpose	Common Use of Main Compound
Acid	Hydrochloric acid or muriatic acid	Helps dissolve minerals and initiate cracks in the rock	Swimming pool chemical and cleaner
Antibacterial agent	Glutaraldehyde	Eliminates bacteria in the water that produce corrosive by-products	Disinfectant; sterilizer for medical and dental equipment
Breaker	Ammonium persulfate	Allows a delayed break down of the gel	Used in hair coloring, as a disinfectant, and in the manufacture of common household plastics
Corrosion inhibitor	Formamide	Prevents the corrosion of the well casing	Used in pharmaceuticals, acrylic fibers and plastics

Chesapeake Energy (above), DOE Primer (below)

EXHIBIT 36: FRACTURING FLUID ADDITIVES, MAIN COMPOUNDS, AND COMMON USES.

Additive Type	Main Compound(s)	Purpose	Common Use of Main Compound
Diluted Acid (15%)	Hydrochloric acid or muriatic acid	Help dissolve minerals and initiate cracks in the rock	Swimming pool chemical and cleaner
Biocide	Glutaraldehyde	Eliminates bacteria in the water that produce corrosive byproducts	Disinfectant; sterilize medical and dental equipment
Breaker	Ammonium persulfate	Allows a delayed break down of the gel polymer chains	Bleaching agent in detergent and hair cosmetics, manufacture of household plastics
Corrosion Inhibitor	N,n-dimethyl formamide	Prevents the corrosion of the pipe	Used in pharmaceuticals, acrylic fibers, plastics

Match the scope to the problem

Many of the reported incidents (such as impacts to water supply quantities or the effects of discharged groundwater extracted during the coalbed methane production process) are outside of the scope of SDWA and beyond the scope of this Phase I of the study.

--EPA 2004 Study

- "Outside the scope" impacts included:
- Drinking water charged with methane
- Kitchen water with "globs of black, jelly-like grease" that had "turned brown and contained slimy floating particles"
- Fracking "soap migrating into drinking water wells"
- And many, many more incidents.

Take a precautionary approach

constituents found in fracturing fluids. After reviewing all the available data and incident reports, EPA sees no conclusive evidence that water quality degradation in USDWs is a direct result of injection of hydraulic fracturing fluids into coalbed methane wells and subsequent underground movement of these fluids.

- Limited data should weigh against polluters, not the public. Gas companies have fought disclosure.
- Look for broad-scale trends and risks, not just local mechanisms.

Look regionally

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- Regional impacts and vulnerability differ.

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Thank you for taking a second look