UIC Program Update: Hydraulic Fracturing

National Drinking Water Advisory Council, Washington, D.C.
December 9, 2010
Drinking Water Program Focus

- Ensure high quality water is available to provide for drinking water needs
- Prevent contamination and preserve existing sources of drinking water (focus on USDWs)
- Provide safe drinking water to those served by public water systems
Hydraulic Fracturing

2010 Study
UIC Authorities
Industry Petition
Hydraulic Fracturing Schematic

Hydraulic fracturing, or “fracking,” involves the injection of more than a million gallons of water, sand, and chemicals at high pressure down and across into horizontally drilled wells as far as 10,000 feet below the surface. The pressurized mixture causes the rock layer, in this case the Marcellus Shale, to crack. These fissures are held open by the sand particles so that natural gas from the shale can flow up the well.
“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.”
Public Meetings on EPA’s Study of Hydraulic Fracturing

<table>
<thead>
<tr>
<th>Location</th>
<th>Speakers</th>
<th>Attendees</th>
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<tr>
<td>Fort Worth, TX</td>
<td>83</td>
<td>463</td>
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<td>Denver, CO</td>
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<td>Canonsburg, PA</td>
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<td>Binghamton, NY</td>
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Stakeholder Input from Public Meetings

- What should be our highest priorities?
- Where are the gaps in current knowledge?
- Are there data and information we should know about?
- Where do you recommend we conduct our case studies?
What Did We Hear?

- Focus on water
- Focus on air and other impacts
- Conduct a comprehensive analysis
- Conduct a narrow analysis
- Study cumulative impacts
- Study chemical composition of chemical compounds, flowback, and produced water
- Study water use
- Conduct case studies
Phases of the Hydraulic Fracturing (HF) Water Cycle

- Water acquisition
- Chemical mixing
- Well injection
- Flowback and produced water
- Water treatment and waste disposal
Hydraulic Fracturing: Study Timeline

Seek Input

- Summer 2010

Start Study

- Early 2011
- Early 2011
- Early 2012

SAB Peer Review

Initial Results

- Early 2011
- Early 2012

- Summer 2010

- Early 2011

- Early 2011
- Early 2012
**EPA’s Hydraulic Fracturing (HF) Authorities**

- Key water-related regulatory authorities for addressing impacts of HF include the following:
  - **Clean Water Act (CWA)**
    - Effluent Limitation Guidelines / Water Quality Criteria
    - NPDES permits
  - **Safe Drinking Water Act (SDWA)**
    - Underground Injection Control (UIC) regulations for disposal of waste water via injection
    - UIC regulations for fracturing with diesel fuel
  - Other acts apply including the Clean Air Act (CAA), the National Environmental Policy Act (NEPA), the Toxic Substances Control Act (TSCA), and the Resource Conservation and Recovery Act (RCRA)
Hydraulic Fracturing Information Request

• On September 9, 2010, EPA issued voluntary information requests to nine leading national and regional hydraulic fracturing service providers. The information requested is integral to ORD’s study.
  • chemical composition of fluids
  • data on the impacts of the chemicals on human health and the environment
  • standard operating procedures
  • locations of sites where fracturing has been conducted

• Eight of the nine companies responded to EPA’s request and agreed to submit timely and complete information

• One company, Halliburton failed to provide the information as quickly as we needed to move forward with the study.

• On November 9, 2010 EPA issued a subpoena requiring submission of the requested information.
Use of Diesel for Hydraulic Fracturing under the SDWA

SDWA Section 1421 (d)(1)(B)

The term “underground injection” excludes:

- (i) the underground injection of natural gas for purposes of storage; and
- (ii) 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.
Industry Petition on HF

- In October, industry (IPAA and others) filed suit against EPA
- EPA HF website describes UIC authorities to regulate HF using diesel
- IPAA maintained that language posted on EPA’s HF website was final Agency action without appropriate opportunity for public comment
- In addition, IPAA said EPA overextended its authority by establishing a new national policy
EPA and DOJ filed in the DC Court of Appeals to dismiss IPAA petition because we were simply stating the SDWA authority enabling us to regulate HF w/diesel.

However, IPAA counter-filed and we are now waiting on DC Court of Appeals response.
Response to Reported Contamination

- SDWA, 42 U.S.C. Section 1431(a) authorizes the Administrator to act in the event or imminent and substantial endangerment to health.

- On December 7, EPA issued a 1431 order to Range Resources after tests confirmed methane, benzene, and other constituents in private drinking-water wells that serve two homes in southern Parker County, TX.
  - provide drinking water and methane gas monitors to the two homes.
  - immediately sample soil gas near the homes.
  - sample all nearby drinking water wells to determine the extent of aquifer contamination.
  - develop a plan to remediate contaminated areas of the aquifer.
  - investigate the integrity of a nearby natural gas well to determine if it is the source of contamination.
Summary

- Natural gas is a critical source of energy for the U.S.
- EPA is aware of health and environmental concerns and takes these concerns seriously.
- Natural gas exploration must be done in a manner that is protective of human health and the environment.
The next opportunities for public comment on the HF Study will be part of the peer review process.

Website:  www.epa.gov/sab

EPA Hydraulic Fracturing Website

http://epa.gov/hydraulic.fracturing
THANK YOU!