US EPA Hydraulic Fracturing Study
Consultation with Environmental Organizations
Wednesday, June 23, 2010

Meeting Summary
US EPA (hereafter referred to as EPA) announced plans to initiate a study on the potential relationship between hydraulic fracturing used for natural gas extraction and drinking water in March 2010. Several webinars and public meetings are planned to involve stakeholders in the study development process. As part of the stakeholder process, a consultation with environmental and non-governmental organizations was held in Washington, DC, and broadcast as a concurrent webinar in order to obtain comment on a proposed study design. The meeting began with brief presentations by EPA on proposed study scope and the stakeholder process followed by discussion between EPA and attendees. EPA staff from the Office of Research and Development, Office of Water and Regional Offices participated, and 64 guests attended the meeting, either in person or by webinar.

Meeting participants suggested a number of technical topics that EPA could include in the study, such as air quality, land use, chemical toxicity, and waste treatment and disposal. Participants recommend that EPA focus on new field studies and work to ensure the quality and objectivity of these new investigations. Participants expressed a desire for the study to include all phases and aspects of the hydraulic fracturing process. Participants also provided suggestions for outreach and data solicitation. In response to participants' questions, EPA explained and clarified details of the study's scope, focus, and logistics.

The following is a summary of the discussion between EPA and meeting attendees regarding the EPA Hydraulic Fracturing Study. The information is organized by discussion theme. Bulleted statements under each theme represent the responses to the questions and comments posed to EPA and suggestions for the Hydraulic Fracturing Study.

<u>Scope of Study</u>

- Several stakeholders recommended that EPA consider the potential air quality impacts of hydraulic fracturing (HF) activities. Air quality effects may indirectly impact drinking water (i.e., when airborne particles settle on surface water). EPA will consider these suggestions when developing the draft study plan, although the charge from Congress specifically focuses on drinking water impacts. The Congressional charge does not limit the scope of the study to drinking water issues, but it does define the primary focus of the investigation. EPA Region 6 is currently investigating the air quality impacts of HF.
- Stakeholders expressed concern that the study will not include all aspects of the HF and natural gas extraction process. EPA will use a lifecycle framework to organize the study. While a complete mass balance will most likely be beyond the scope of the study, EPA is currently planning to consider all stages of HF activities, including initial water withdrawals and waste storage and disposal.

- Stakeholders suggested that EPA focus on field investigations rather than rely on data submitted by industry partners, and that the Agency consider the cumulative impact of HF activities rather than focusing on single wells as previous industry studies have done.
- Stakeholders recommended that EPA not limit the study to aspects that are unique to HF. The large scale of HF projects (i.e., the intensity of activities in an area) creates unprecedented situations even with respect to established practices.
- EPA welcomes any input on the timeframes that should be considered in the study (e.g., the length of time that abandoned wells will need to maintain mechanical integrity).
- To the extent feasible, the draft study plan will likely address the toxicity and fate and transport of HF chemicals. EPA is interested in collecting information on the chemicals' relative toxicity levels (such as any available ranking or scoring systems).
- EPA staff and contractors will conduct the research for the study. In addition, EPA may collaborate with universities or other outside groups through EPA's Science to Achieve Results (STAR) cooperative grants, as well as other federal agencies. All data that is collected will be subject to the Agency's quality assurance/quality control (QA/QC) standards EPA will work with Agency laboratories and EPA regional offices to assess available technical methods.
- Stakeholders asked about the study's funding. EPA received $1.9 million for the study in Fiscal Year (FY) 2010. EPA requested an additional $2.5 million for FY 2011, but the final amount will be determined by Congress, and the Agency does not know the status of the study's funding after 2011. EPA will not know the specific amounts allocated to the case studies and other portions of the study until research priorities are identified.
- Stakeholders recommended that EPA clarify potentially incorrect information that has been published by industry representatives or described in the media by developing an HF primer that clarifies the history and regulatory status of HF operations, as well as the primary technologies used at HF sites. While such a document will likely be beyond the scope of this study, EPA will consider the suggestion for the future.
- Stakeholders recommended that the study address the following topics:
    - The role of microorganisms with respect to wetland health and methane formation.
    - The amount of gas released from wells that are vented to relieve formation pressure.
    - The role of drilling muds in drinking water contamination.
    - The impacts of land clearing and forest fragmentation for gas development on drinking water resources.
    - The land application of HF fluids and other surface and vadose zone issues.
    - The potential impacts on nuclear waste storage sites.
    - The predictability of fracture behavior.
    - The impact of formation fractures on well integrity.

<u>Case Study Selection</u>

- Stakeholders recommended that the case study locations be selected based on the following criteria:
    - The intensity and duration of HF activity at a site.

    - The site's hydrology and drinking water resources.
    - The population size served by the local watersheds.
    - Whether a site has previously been linked to contamination from HF.
- EPA will consider locations with a variety of geologic and hydrologic characteristics. The Agency will also consider conducting both prospective and retrospective case studies. Retrospective studies can include existing data, but often lack baseline information. Stakeholders expressed support for including sites without baseline data if those sites show other indications of contamination.
- Stakeholders expressed concerns that case study sites may be treated differently by industry operators, resulting in a selection bias where studied sites have artificially low well failure rates. To prevent this, case study data could be supported with information on the actual failure rate of wells in the vicinity.

Stakeholder Process

- The Science Advisory Board – an independent, external federal advisory committee that provided advice on EPA's proposed study approach in April 2010 – included several representatives from the public health field; the Board will revise their draft report and submit the revision to the EPA Administrator for consideration.
- Stakeholders asked about EPA's strategy for selecting public meeting locations. EPA selected the locations for the public meetings based on EPA Regional input in areas with the greatest concentration of HF activities and the potential to reach a large number of interested groups and individuals. The Agency welcomes any suggestions for making the public meetings accessible to more people (i.e., holding a webcast for the general public).
- Written and oral comments will be considered equally. Oral comments at the public meetings will be limited to two minutes, and attendees will be encouraged to submit additional information in writing.
- The presentations and summary notes from each of the sector-specific webcasts and public meetings will be posted on EPA's Hydraulic Fracturing Web site (http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/wells_hydroout.cfm).
- Stakeholders asked if EPA is planning an additional sector-specific meeting for academic institutions. EPA has not planned to hold such a meeting, but EPA does plan to include representatives from academia in the technical workshops.
- EPA requested that stakeholders submit comments and data in writing, either by e-mail or postal mail, or verbally at the public meetings.
- EPA will receive hard copies of data and comments via different postal and courier services. The postal address to send comments is Jill Dean, 1200 Pennsylvania Ave. NW, Mailcode 4606M, Washington, DC 20460. The courier (i.e., UPS, Federal Express) address to send comments is Jill Dean, EPA East, 1201 Constitution Ave. NW, Room 2118F, Washington, DC 20460.

Ongoing and Existing Research

- EPA is investigating the Agency's authority to obtain data from groups who do not offer it voluntarily.
- EPA noted that they have already received all materials previously submitted to the SAB.
- Stakeholders have several ongoing activities relevant to the study and look forward to collaborating with EPA.

Environmental Organizations Represented at Consultation

Affiliation
Damascus Citizens for Sustainability, Inc.
Earthjustice
Ecology and Environment, Inc.
Open Space Institute
Zimmerman & Associates
AKRF, Inc.
American Rivers
Arkansans for Gas Drilling Accountability
Battelle
Center for Coalfield Justice
Citizens Against Resource Exploitation
Citizens Campaign for the Environment
Code Blue Foundation
Colorado School of Public Health
Community Environmental Defense Council
Croton Watershed Clean Water Coalition
Earthjustice
EARTHWORKS Oil & Gas Accountability Project
Ecology and Environment, Inc.
Ecuadorian Rivers Institute
Environment America
Environment Texas
Friends of the Upper Delaware River
Greenbrier River Watershed Association
Hancock Citizens for Sustainability
Haudenosaunee Environmental Task Force
Healing Therapies
Investor Environmental Health Network
League of Women Voters of Texas

Affiliation
League of Women Voters of Washington County, Arkansas
Merlin Nexus
Mobile Housing of Texas
National Ground Water Association
Natural Resources Defense Council
New York City Department of Environmental Protection
OMB Watch
Riverkeeper
San Juan Citizens Alliance
Sierra Club
Southern Environmental Law Center
The Endocrine Disruption Exchange
The Wilderness Society
Tip of the Mitt Watershed Council
Trout Unlimited
University of Pittsburgh
University of Pittsburgh Environmental Law Clinic
West Virginia Rivers Coalition
West Virginia Surface Owners' Rights Organization
Western Colorado Congress
WVKR Radio
Yates County Planning Department