

Potential Relationships Between Hydraulic Fracturing and Drinking Water Resources



Why study hydraulic fracturing?

- Natural gas is a key energy resource
- Public has raised concerns about hydraulic fracturing and water
- EPA wants to ensure that public health and the environment are protected



Directive to EPA from the FY10 Appropriation Conference Committee

“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.”

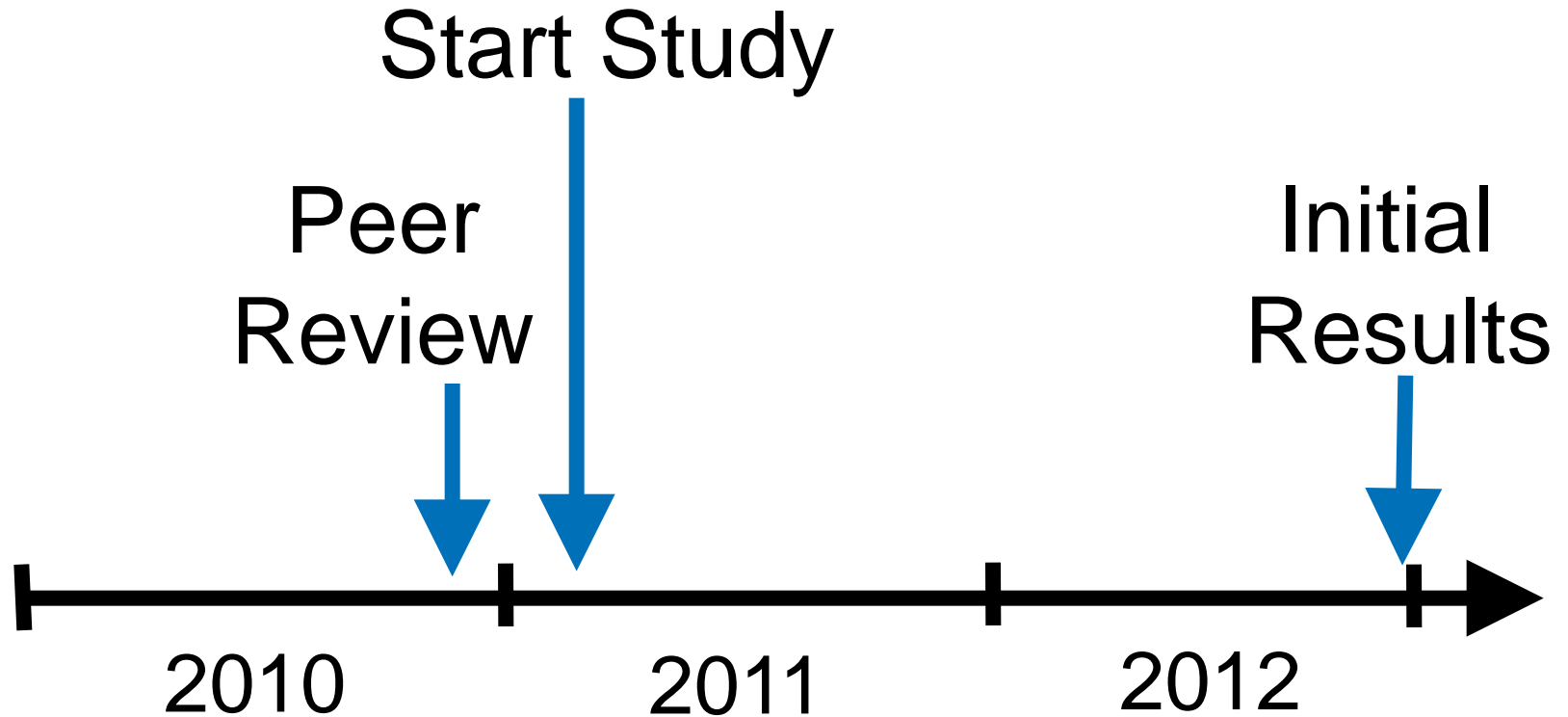
Study Approach

- Best available science
- Independent sources of information
- Transparent, peer-reviewed process
- Consultation with others

Study Plan Development

- Led by EPA scientists
- Initial recommendations by EPA's Science Advisory Board (April 2010):
 - Focus on water resources (quality and quantity)
 - Use case-study approach
 - Stakeholder process important

Study Timeline



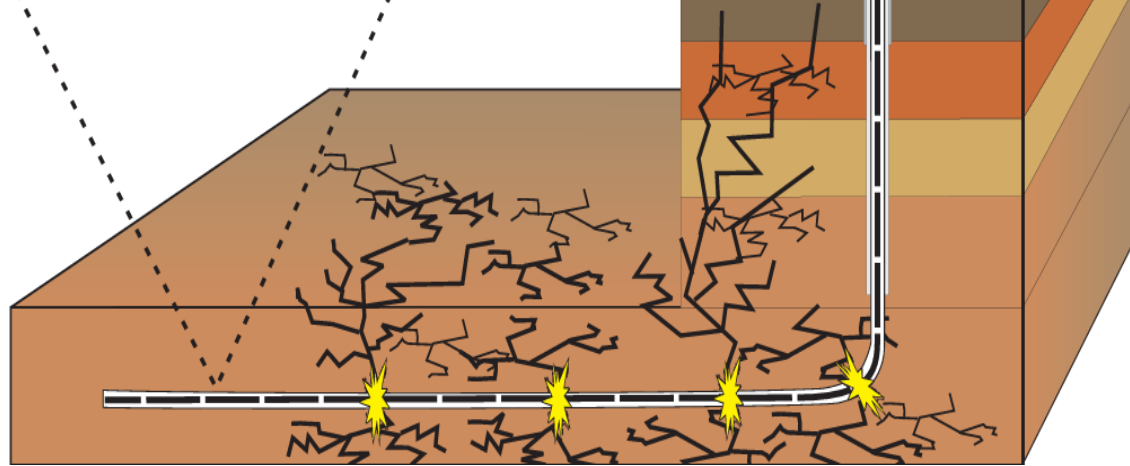
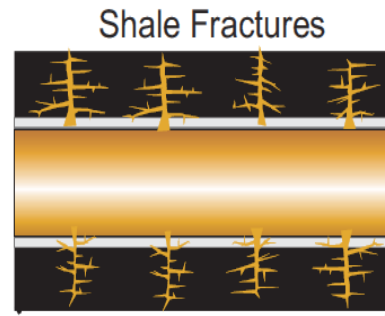
What do we hope to learn from this study?

- What hydraulic fracturing scenarios might cause impacts on drinking water resources?
- What approaches are effective for protecting drinking water?

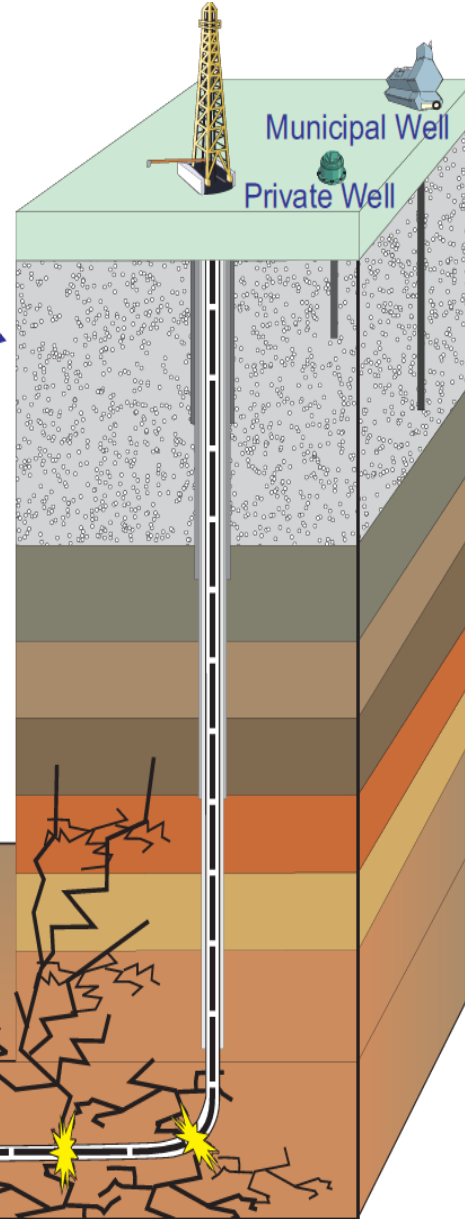


Hydraulic Fracturing Overview

Up to 5 Million gallons water



Production Well & Onsite Management



Wastewater management & disposal

What are the major elements of the study?

- Data and information
- Chemical characterization, fate and transport
- Case studies

What types of data and information are needed?

- Pre- and post-drilling site characteristics
- Chemical data
 - Hydraulic fracturing fluids
 - Water quality
- Water use (sources, amount)
- Well construction, well integrity
- Operation and management practices

What sources of data and information will be used?

- Existing sources
 - Stakeholders
 - Published reports
- New sources
 - EPA study
 - Other ongoing studies



Fate and Transport

- Characterize fracturing fluids and their degradation products
- Determine the potential to mobilize chemicals from geologic formations
- Identify and refine methods for chemical analysis



Why are we using case studies?

- Opportunity for focused field investigations
- Evaluate hydraulic fracturing in different parts of the U.S.
 - Geologic factors
 - Water resource management practices
 - Water quality and quantity

Potential Sites for Case Studies

- Where hydraulic fracturing:
 - is planned - prospective
 - has occurred - retrospective



How will we identify and prioritize case studies?

- Stakeholder recommendations
- Vulnerable water resources
 - Proximity of other wells, exposure pathways
 - Extent of activity (wells/acre)
- Geologic conditions
- Geographic variations



What are the next steps in developing the study plan?

- Stakeholder input (Summer 2010)
 - Study Design
 - Data and Information
 - Case studies
- Peer review and public comments (Fall 2010)

Stakeholder Events

Facilitated Public Meetings

- July 8, Fort Worth, TX
- July 13, Denver, CO
- July 22, Washington, PA
- Sep 13, 15, Binghamton, NY

Sector-Specific Meetings

- May - June 2010
- Sectors: State & federal partners, industry, environmental groups, citizens, tribes

Technical Workshops

- November – January 2010 (estimated)
- Locations: To be determined
- Proposed topics: mechanical well integrity, chemical characterization, fate & transport, water resource management

QUESTIONS ??

