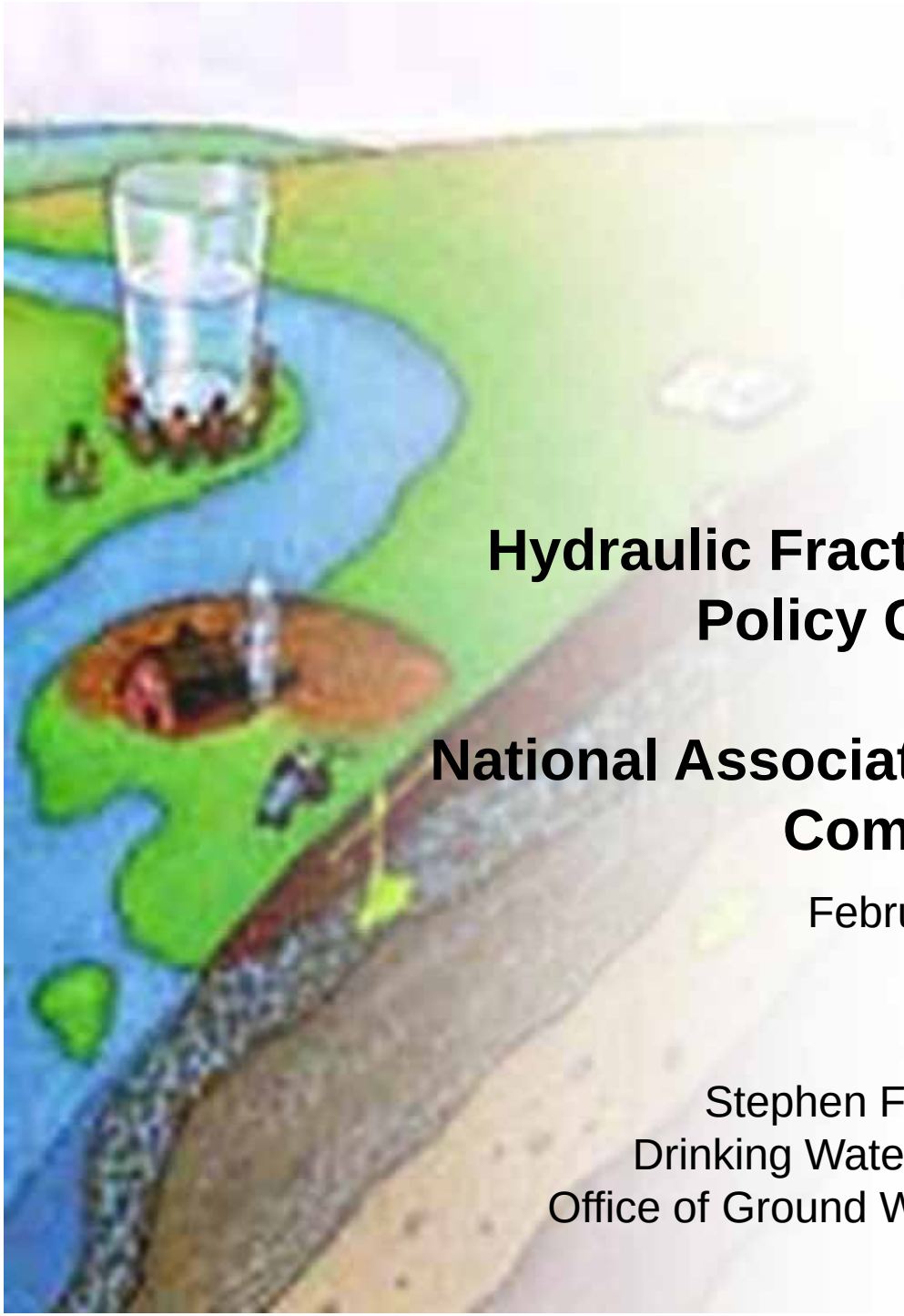
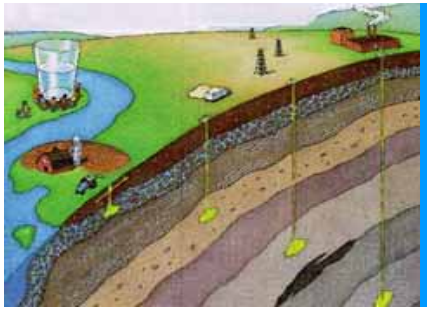


Hydraulic Fracturing: Regulatory and Policy Considerations

National Association of Regulatory Utility Commissioners

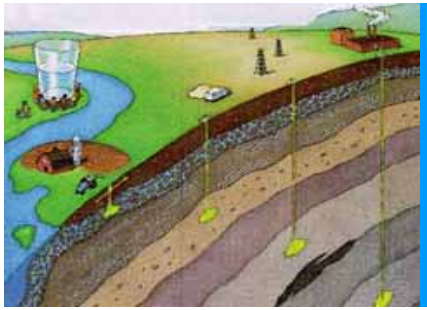
February 15, 2010

Stephen F. Heare, Director
Drinking Water Protection Division
Office of Ground Water and Drinking Water



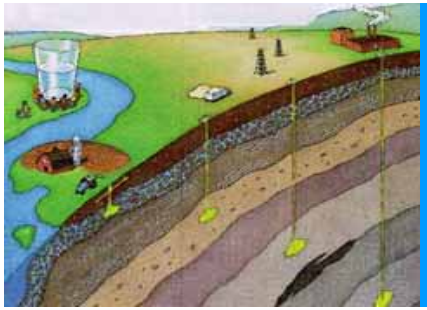
Outline

- History of Hydraulic Fracturing and EPA's Underground Injection Control (UIC) Program
  - Statutory Framework
  - EPA Hydraulic Fracturing History before 1997
  - EPA Hydraulic Fracturing History 1997 – 2004
  - EPA UIC Coalbed Methane Study
  - Potential Impacts to Underground Sources of Drinking Water
  - 2005 Energy Policy Act
  - 2009 Activities
  - 2010 Appropriations Language



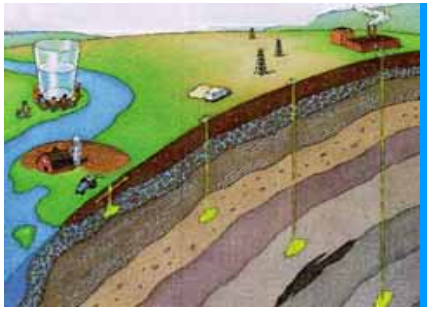
Statutory Framework of UIC

- The Safe Drinking Water Act (SDWA) requires EPA to protect underground sources of drinking water from contamination caused by underground injection (Sections 1421,1422, 1425, 1431)
  - §1421 provides minimum standards for underground injection
  - §1422 provides for state primary enforcement authority
  - §1425 provides for alternative showing of effectiveness of program by state UIC Programs (Oil and Gas wells only)
  - §1431 contains provisions to address imminent and substantial endangerment



Statutory Framework of UIC (cont'd)

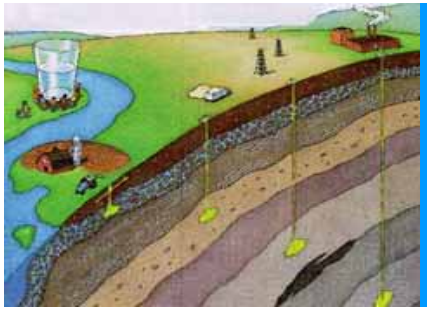
- Activities not regulated under the Safe Drinking Water Act:
  - Oil and gas *production* activities
  - Surface discharges
  - Hydraulic fracturing (except use of diesel) per 2005 Energy Law
  - Natural gas storage
- States may choose to regulate these activities



EPA Hydraulic Fracturing History Before 1997

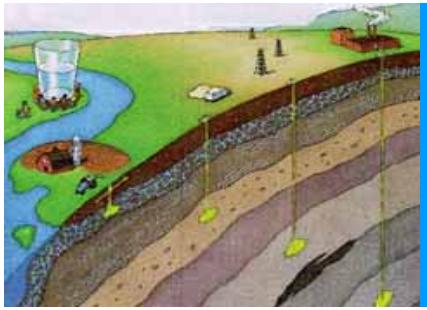
Prior to 1997:

- Oil and gas production wells were generally not considered “injection wells” for purposes of the Safe Drinking Water Act
- EPA considered HF a part of the oil and gas production process and exempt from SDWA
- SDWA §1421(b)(2) mandated that UIC requirements must not interfere or impede with oil and gas production activities
- SDWA §1425 provided States an alternate demonstration relating to oil and gas; State Class II programs must be “effective” to prevent the endangerment of USDWs rather than equivalent



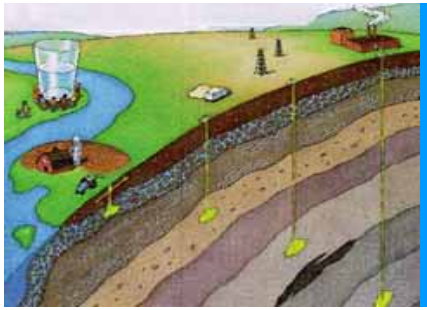
EPA HF History 1997 - 2004

- In 1997, the 11th Circuit Court ruled that HF of coal beds in Alabama should be regulated under the SDWA
- The State of Alabama was required to develop HF regulations and EPA approved the modifications to the state's UIC program
- In 1999, EPA began to study HF in Coalbed Methane Reservoirs
- EPA signed Memorandum of Agreement in 2003 with major service companies to stop injecting diesel into USDWs during HF of CBM reservoirs
- In 2004, EPA completed the study, *Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs*



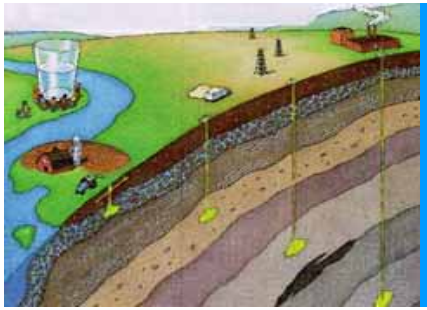
EPA UIC Coalbed Methane Study

- Focus of 1999-2004 study: Impacts to drinking water directly related to hydraulic fracturing of CBM reservoirs
- Objectives:
  - Review existing literature and information on incidents of ground water contamination in the vicinity of CBM fracturing activities
  - Evaluate theoretical potential for contamination of USDWs due to injection of hydraulic fracturing fluids into coalbed methane wells
  - Determine whether further study is needed
- The phased-approach study focused on CBM because CBM gas reservoirs are typically closer to the surface and have a higher potential to impact USDWs than conventional oil and gas reservoirs
- Over the last several years, the study has been selectively used by individuals and groups to both support and oppose HF in a variety of oil and gas production applications



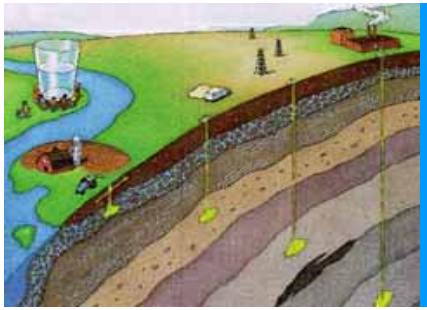
CBM Study Conclusions

- EPA determined injection of hydraulic fracturing fluids into CBM wells posed little or no direct threat to USDWs
- Study limitations
  - Focused on direct threats to USDWs from HF
  - Limited to CBM plays, not all unconventional formations
  - Limited to existing data
- EPA recognized potential indirect impacts from HF may exist beyond the scope of SDWA and the study
  - Surface discharge of waste waters
  - Depletion of drinking water supplies
  - Methane migration



Potential Impacts to Underground Sources of Drinking Water

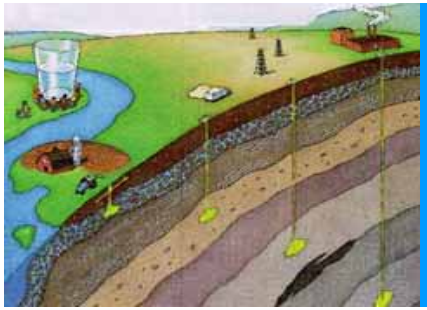
- Direct Impacts
  - Contamination of underground sources of drinking water (USDWs) by the injection or migration of fracturing fluids into USDWs
- Indirect Impacts
  - The creation of pathways for the upward migration of natural gas into USDWs
  - The potential impacts from waste management of production water and withdrawals on water availability



More Impacts

- **Access roads**
- **Well pads**
- **Transport vehicles**

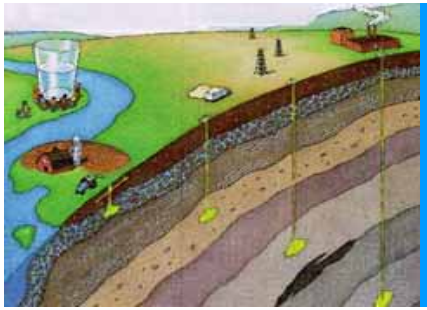
- **Compression stations**
- **Cleaning stations**
- **Pipelines**



2005 Energy Policy Act

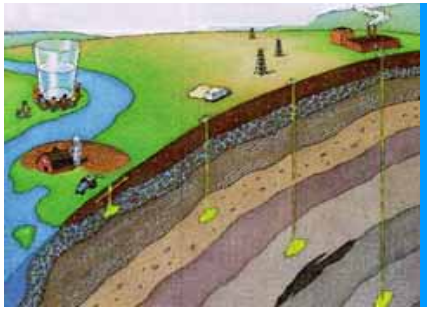
- The 2005 Energy Policy Act excluded hydraulic fracturing from regulation under the Safe Drinking Water Act
- EPA has no regulatory oversight authority over hydraulic fracturing except in cases where diesel fuel* is used as a constituent in fracturing fluids

*An owner/operator injecting diesel underground is subject to SDWA and would either need to obtain a permit, or be authorized by rule to inject. (40 CFR 144.11)



Hydraulic Fracturing Activities in 2009

- On June 9, 2009, companion bills were introduced in the House and Senate to regulate HF under SDWA
- Both bills would remove the HF exemption from SDWA and add disclosure provisions for HF fluids:
  - relate to oil and gas production activities
  - require disclosure with focus on emergency medical personnel
  - could require disclosure of proprietary chemical formulas to emergency personnel
- If legislation passes, revisions to the UIC regulations will be necessary



2010 EPA Appropriations Conference Committee Report

– Appropriations conferees request to EPA:

"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. "

Questions, Comments?

Heare.steve@epa.gov