Will The Regulatory Noose Choke Fracking?

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Overview
Benefits
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Average Hydraulic Fracturing Fluid Composition for US Shale Plays

- **Water**: 99.2%
- Acid: 0.07%
- Corrosion Inhibitor: 0.05%
- Friction Reducer: 0.05%
- Clay Control: 0.034%
- Crosslinker: 0.032%
- Scale Inhibitor: 0.023%
- Breaker: 0.02%
- Iron Control: 0.004%
- Biocide: 0.0011%

Source: FracFocus data August 2012
U.S. poised to become world’s No. 1 hydrocarbon producer in 2013

- Overtaking Russia and Saudi Arabia
- Powered by increases in natural gas and oil production
- Improves energy trade balance (less reliance on ‘foreign oil’)
- Possible net exporter by 2020 or earlier

12% decline in CO2 emissions over the last five years

- Cheaper natural gas spurred transition from coal in energy production
- Natural gas emits about half the amount of CO2 compared to coal
- Not quite to Kyoto Protocol (reduce 7% from 1990 levels)

Economic benefits

- Dollar value of increased production in the billions
- Increase in direct/indirect employment
- Multiplier effect on local economy in areas allowing fracking
Concerns

Groundwater contamination
- Introduces chemicals to ‘fractured’ formations
- Inadequate casing/cementing allows natural gas to pollute aquifer

Creates large amounts of wastewater (‘flowback water’)
- Must be properly handled
- Usually in injection wells or recycling

Causes air pollution
- Emits greenhouse gases, including methane
- Emits volatile organic chemicals

Earthquakes
Concerns

FRACKING FOR FUEL
Hydraulic fracturing is used to access oil and gas resources that are locked in non-porous rocks.

- Methane gas escapes during the mining process.
- Blowouts are possible.
- Water recovery tanks: Polluted flowback water may be injected into a deep storage well, recycled or sent to a treatment plant.
- Leakage of fracking fluids from the pipe has not been seen.
- Poorly treated flowback water has leaked into drinking water.
- Methane gas can escape through holes in the well casing, allowing fluid to exit and gas to enter.
- Gas flows from the fractures into the pipe.
- High-pressure fracking fluid opens networks of fractures in the shale, sand props the fractures open.
UIC Program
Excluded from regulation by Energy Policy Act of 2005, except when diesel is used
Need UIC Class II permit to inject diesel fuels during fracking
Published draft guidance for permitting (UIC#84, May 2012)

NSPS for Oil and Gas Source Category (as to gas wells)
Part of larger rule proposed August 23, 2011 and finalized August 16, 2012
NSPS: 40 CFR 60, Subpart OOOO
Applies to flowback period: from fracking to shut-in or flow to line/vessel
Before 1/1/15:
  Route flowback emissions to completion combustion device, or
  Use ‘green completions’ (reduced emissions completion)
After 1/1/15: Completion combustion device and REC
REC not considered a modification
Adds notification, record-keeping, and reporting requirements
Conducting national study on impacts on drinking water resources

Requested by Congress
Progress report in December, 2012; draft report due in 2014
Looking at
  - Water acquisition
  - Chemical mixing
  - Well injection
  - Flowback and produced water
  - Wastewater treatment and waste disposal

Conducted local studies of groundwater contamination

- **Pavillion, Wy.** – Released draft report in December, 2011 (without peer review)
  - Discontinued public comment, will not finalize or peer review

- **Dimrock, Pa.** – Turned over to Wyoming to complete study
  - Contaminants found but not above drinking water standards
  - No indication if methane caused by drilling or naturally occurring

- **Parker County, Tx.** – Methane in water well prompted EPA to issue order
  - Order against Range Resources dropped by EPA
Federal Regulation – Bureau of Land Management

Been called a “solution in search of a problem”
Proposed in May, 2012
Applies to federal land
Generally requires:
  - Public disclosure of chemicals
  - Confirmation that wells meet appropriate construction standards
  - Appropriate plans in place for managing flowback waters
Criticism suggests that the rule merely duplicates existing state rules
Some states want more federal regulation

Urge passage of FRAC Act by Congress

New Jersey, Pennsylvania, Kansas, Utah

FRAC Act - removes SWDA exemption and requires chemical disclosure

Most states have their own regulations

Disclosure
Well Integrity
Water Resources
Moratoria

Some states have proposed additional regulation
*Many states require reporting of chemicals

*Some require concentrations as well

*Louisiana: Act 812 of 2012 requires ingredients and concentrations

*Many companies use FracFocus.org
Most states have specific rules governing casing, cementing, and pressure testing applicable to all oil and gas drilling.

**Texas just updated rules, effective 2014**
- Pressure test to maximum pressure expected during fracking
- Cement to depth at/below formations that have injection wells within ¼ mile
- Updates minimum cement thickness

**Pennsylvania updated rules in 2011**
- Need a casing and cementing plan prior to drilling
- Presumption regarding water supply contamination if detected within 6 months
- Inspect wells every three months

**API published well construction and integrity guidelines**
- API Guidance Doc. HF-1 (October, 2009)
Withdrawal
- From surface sources or groundwater
- Competes with other legitimate uses
- Some states/counties impose limits or require permits

Disposal
- Mostly in Class II injection wells
- Most states have UIC permitting authority
- Pennsylvania allowed discharge into POTWs for a time

Recycling
- Filtering water at well-site for re-use
- Weigh cost of injection versus cost of recycling
New York
- Five year moratorium begun in 2008
- Continued by Gov. Cuomo for review of practice
- Review ongoing; called ‘paralysis by analysis’
- Chesapeake Energy will allow its leases to lapse

North Carolina and Maryland have bans in place

New Jersey
- Expired in January, 2013

Ohio
- Governor-imposed local ban after ‘earthquakes’ lifted
State Regulation – Proposals

New York
- Prohibit drilling within 10 miles of NYC water supply infrastructure
- Test groundwater before and after drilling
- Prohibit use of fracking fluids which contain harmful chemicals
- Require permits for water withdrawals over 5,000 gallons
- EIS prior to any fracking

New Jersey
- Prohibit treatment, discharge, or storage of fracking wastewater
- Prohibit fracking

Other
- Presumption that contamination is caused by fracking
- Prohibit POTWs from accepting fracking wastewater
Questions?

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