What's Happening IN THE USA?

BY LAWRENCE GABLE

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Fracking Raises Serious Concerns

One method that oil companies have for getting natural gas from the ground is called hydraulic fracturing. People often just shorten that name to "fracking." In the last few years oil companies have been fracking more often. While it does lead to more natural gas, it also raises concerns about the damage it does.

Fracking reaches gas that is trapped within layers of rock deep in the ground. It starts by drilling a long hole as deep as 10,000 feet. When it reaches a layer of shale, the drill turns horizontally and drills another mile through that rock. Then a small explosive makes tiny cracks in the shale. After that the company blasts millions of gallons of water, sand and chemicals under high pressure to open the cracks further. That allows the trapped gas to escape from the rock.

The second largest natural gas deposit in the world is in the United States. It is the Marcellus Shale, which stretches from upstate New York across parts of Pennsylvania, Ohio, Maryland, West Virginia and Virginia. Oil companies are increasing their use of hydraulic fracturing in those states. In Pennsylvania, for example, the number of wells grew from 27 in 2007 to 1,445 in 2010. Experts believe that companies will drill 3,500 new wells every year for the next decade.

For a long time environmentalists have liked natural gas as a source of energy. In comparison to the pollution that comes from mining coal and burning it at power plants, natural gas is cleaner. It produces fewer greenhouse gases that cause global warming. However, environmentalists are changing their minds now because of the pollution that comes from fracking.

Recently Cornell University published a study about fracking. It found that fracking is leading to more global warming than coal does. Methane is a greenhouse gas that escapes into the air from drilling normal gas wells. However, twice as much methane escapes from wells drilled by hydraulic fracturing. Methane is also getting into groundwater. Some landowners near wells have been able to light their water on fire as it comes out the faucet.

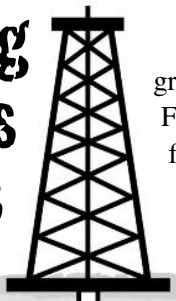
There are also serious concerns about groundwater contamination from chemicals. Fracking uses about 40,000 gallons of chemicals for each well, and oil companies use up to 600 different chemicals. The Environmental Protection Agency confirms that a number of them are poison, and some cause cancer. The oil industry says that fracking does not pollute water, but already there have been more than 1,000 cases of water contamination. People cannot drink their water, animals have gotten sick, and chemicals have killed fish and plants in some ponds and streams.

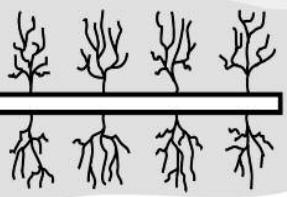
Fracking always results in a certain amount of wastewater with chemicals in it. Some of it remains in the ground, and some returns to the surface. When companies leave it there to evaporate, harmful chemicals enter the air. Environmentalists argue that companies always should clean the wastewater or bury it in containment wells.

The United States Geological Survey has studied fracking too. It links both fractured shale and containment wells directly to recent earthquakes in Ohio and Oklahoma. It also fears the effect of tens of millions of gallons of water and chemicals that remain in the ground, and describes it as a "mystery" for now.

Protests against fracking are increasing, and states are proceeding with caution. New York has banned it, and Maryland has stopped it while it studies the environmental impacts. Five other states now require companies to report the volume of water and chemicals that they are using. Pennsylvania is forcing companies to identify exactly which chemicals they are using. In the spring North Carolina will make a decision on whether to allow fracking or not.

The advantages of fracking are obvious, because it could lead to jobs, profits and a supply of natural gas that might last 100 years. However, its disadvantages are troubling. State governments hesitate to embrace fracking if it is going to damage people's health and the environment around them.





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For a long time environmentalists have liked natural gas. In comparison to the pollution that comes from mining coal and burning it at power plants, natural gas is cleaner. It produces fewer gases that cause global warming. However, now environmentalists are changing their minds.

A recent study found that fracking is leading to more global warming than coal does. Methane is a gas that escapes into the air from drilling normal gas wells. However, twice as much methane escapes from wells drilled by hydraulic fracturing. Methane is also getting into groundwater. Some landowners near wells have been able to light their water on fire as it comes out the faucet.

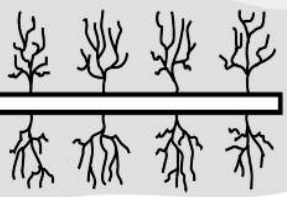
There are also serious concerns about chemicals in groundwater. Fracking uses 40,000 gallons of different chemicals for each well. The U.S. government reports that some of them are poison, and some cause cancer. The oil industry says that fracking does not pollute water. However, already there are many places where people and animals have gotten sick. Chemicals in water also have killed fish and plants in ponds and streams.

Fracking always creates wastewater. Some stays in the ground, and some returns to the surface. When companies leave it there to evaporate, harmful chemicals enter the air. Environmentalists argue that companies always should clean the wastewater or bury it safely in closed wells.

The U.S. Geological Survey has studied fracking too. It connects fracking directly to recent earthquakes in Ohio and Oklahoma. It also fears the effect of tens of millions of gallons of water and chemicals that remain in the ground.

Protests against fracking are increasing. New York has banned it. Maryland and North Carolina have stopped it while they study the environmental damage. Now Pennsylvania is forcing companies to identify the chemicals that they use.

The advantages of fracking are obvious. It could lead to jobs, profits and enough natural gas for 100 years. However, its disadvantages are troubling. State governments hesitate to allow fracking if it is going to damage people's health and the environment around them.



Background Information

Oil companies developed hydraulic fracturing in the late 1940s. The method has changed some since then, and companies began using the current technique in the late 1990s in Texas.

Fracking is becoming increasingly common not only in North America, but also in Western Australia and Europe. Recently China announced that it has begun fracking too.

Bulgaria has just banned shale gas exploration. In 2011 France banned it and the United Kingdom put a temporary stop to it.

Fracking has increased output in the oilfields of Saskatchewan. In 2004 there were 100 oil wells there that produced 900 barrels a day. With the help of fracking, six years later there were 2,000 wells producing 60,000 barrels a day.

A documentary film about the environmental issues related to hydraulic fracturing won an Academy Award. "Gasland" won the 2011 Oscar for Best Documentary Feature.

A 2011 report by the U.S. House of Representatives on the chemical compounds used in hydraulic fracturing shows that many are: a) known or possible human carcinogens; b) regulated under the Safe Drinking Water Act; or c) listed as hazardous air pollutants.

The Natural Resources Defense Council supports federal regulation of fracking.

In addition to the potential to cause cancer, contaminated water also can cause sensory, respiratory, and neurological damage.

Initially the oil industry refused to disclose the chemicals it uses in fracking. However, America's Natural Gas Alliance, an organization that represents 30 large gas exploration companies, now supports voluntary public disclosure by companies.

The study at Cornell University estimates that as much as eight percent of the methane in shale gas escapes into the air during the lifetime of a well created by fracking.

Over the life of a well, the amount of chemical additives to hydraulic fracturing fluids may amount to 100,000 gallons.

The fracking process uses between one and five million gallons of water for each well. Each well requires an average of 400 tanker trucks to carry water and supplies to and from the site.

Topics for Discussion and Writing

Pre-reading:

- Give a brief description of some ways to make electricity.

Comprehension:

- What is fracking?

Beyond the Text:

- What obligations do you think an oil company has to local communities when fracking is planned, or is going on nearby?
- What obligations do you think government has to local communities when fracking is planned, or is going on nearby?
- Tell whether you think citizens' health and the environment should be more, or less, important than jobs and profits.

Vocabulary (*advanced article only)

Article-specific: horizontally; explosive; pressure; deposit; mining; power plant; greenhouse gas*; global warming; groundwater; contamination*

High-use: method*; layer*; decade*; environmentalist; source*; pollution; to publish*; to evaporate; to link*; volume*; obvious; to hesitate; to embrace*

Sources

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New York Times February 28, 2012

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Vancouver Sun February 17, 2012

Gannett News Service February 1, 2012

Saskatoon StarPhoenix January 31, 2012

Philadelphia Inquirer January 22, 2012

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CA Curricular Standards (4–12)

English-Language Arts

Reading 1.0 Vocabulary Development
2.0 Comprehension (Informational Materials)

Writing 1.0 Writing Strategies
2.0 Writing Applications

ELD—*Intermediate and Advanced*

Reading Vocabulary Development/Comprehension
Writing Strategies and Applications
Listening and Speaking

Science

4.4; 5.3; 6.6; 7.4
Ecology; Biochemical Cycles; Structure and Composition of the Atmosphere