

Video
MEDIA SPOTLIGHT

How Hydraulic Fracturing Works

'Fracking' takes a crack at North Dakota's tight oil

For the complete videos with media resources, visit:
<http://education.nationalgeographic.com/media/how-hydraulic-fracturing-works/>

The video above is from the March 2013 iPad edition of National Geographic magazine.

Hydraulic fracturing, or fracking, is a drilling method used to extract petroleum (oil) or natural gas from deep in the Earth. In the fracking process, cracks in and below the Earth's surface are opened and widened by injecting water, chemicals, and sand at high pressure.

Some resources extracted through fracking are called "tight oil" or "tight gas," because these pockets of fossil fuels are tightly trapped in hard shale rock formations. By accessing tight oil and tight gas, the sophisticated technologies used in fracking are rapidly expanding petroleum and natural gas production in the United States.

This video explains the technology of fracking using the example of the Iverson oil well, which drills into the Bakken shale formation near Williston, North Dakota.

FAST FACTS

- One of the first places hydraulic fracturing technology was used was the Barnett shale formation in northern Texas.
- Fracking is used to extract natural gas from the Marcellus shale formation in the northern Appalachian Basin, extending through the states of New York, Pennsylvania, Ohio, Maryland, West Virginia, and Virginia.
- One of the most active sites of fracking for oil is the Bakken shale formation, stretching from western North Dakota and Montana through the southern part of the Canadian province of Saskatchewan.
- A handful of other nations are investing in hydraulic fracturing to extract petroleum and natural gas.
 - Fracking is used to extract natural gas from the Montney shale formation in Alberta and British Columbia, Canada.
 - Fracking is used to extract natural gas from the Sichuan basin in China.
 - Fracking is used to extract petroleum from the Taranaki shale formation in New Zealand.

VOCABULARY

| Term | Part of Speech | Definition |
|--------------------|----------------|--|
| extract | <i>verb</i> | to pull out. |
| fossil fuel | <i>noun</i> | coal, oil, or natural gas. Fossil fuels formed from the remains of ancient plants and animals. |

| | | |
|----------------------|------------------|--|
| fracking | <i>noun</i> | process usually used to extract oil and natural gas in which fractures in the Earth's surface are opened and widened by injecting water, chemicals, and sand at high pressure. Also called hydraulic fracturing. |
| natural gas | <i>noun</i> | type of fossil fuel made up mostly of the gas methane. |
| petroleum | <i>noun</i> | fossil fuel formed from the remains of ancient organisms. Also called crude oil. |
| shale | <i>noun</i> | type of sedimentary rock. |
| sophisticated | <i>adjective</i> | knowledgeable or complex. |
| technology | <i>noun</i> | the science of using tools and complex machines to make human life easier or more profitable. |
| tight gas | <i>noun</i> | unconventional gas trapped in impermeable rock formations. |
| tight oil | <i>noun</i> | petroleum trapped in often-impermeable rock formations. |

For Further Exploration

Articles & Profiles

- National Geographic Magazine: Bakken Shale Oil

Images

- National Geographic Magazine: The New Oil Landscape

Websites

- National Geographic News: The Great Shale Gas Rush



© 1996–2015 National Geographic Society. All rights reserved.