### **Horizontal Drilling**

Operators in Kentucky have had improved success in the Devonian Shale when combining horizontal drilling with fracturing techniques involving nitrogen.

Advantages:

- Reduces surface impact with multiple horizontal wells on single well pad
- Reduces negative impact on mining industry
- Allows operator the ability to drill around surface/topographic features
- Increases exposure to shale reservoir which increases reserve recovery



The mission of the Division of Oil and Gas is to regulate the crude oil and natural gas industry in the Commonwealth; protect the correlative rights of mineral owners, fresh water zones and minable coal seams; and conserve and protect oil and gas reserves in Kentucky.

For further information, go to: http://oilandgas.ky.gov

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## HYDRAULIC FRACTURING IN KENTUCKY



KY Division of Oil and Gas

## GET THE FRAC FACTS!

#### What is Hydraulic Fracturing?

 Hydraulic fracturing, commonly referred to as fracing, is the process of pumping large volumes of water down a well to create small cracks, or fractures, in underground geological formations. This allows oil or natural gas to flow into the wellbore and thereby increase production.





#### How is fracing in Kentucky different than it is in other states?

- Devonian Shale in Kentucky is considered an "unconventional" reservoir which must be fractured to enhance natural gas production.
- The majority of gas wells in Kentucky are fraced with nitrogen gas—the same element found in the air that we routinely breathe.
- High-volume hydraulic fracturing treatments used in the Marcellus and Utica Shale Formations in West Virginia, Pennsylvania, and Ohio are not currently used in Kentucky.

# Why is fracing acceptable?

- The slurry mixture pumped during fracing is made up of 98% sand and water under pressure.
- Regulations require operators to use multiple casing strings and cement to protect the groundwater.
- The Division approves all casing and cementing plans for horizontal wells and has field staff on site during the drilling and fracing phases.

