

Drilling the Marcellus Shale: Environmental Health Issues

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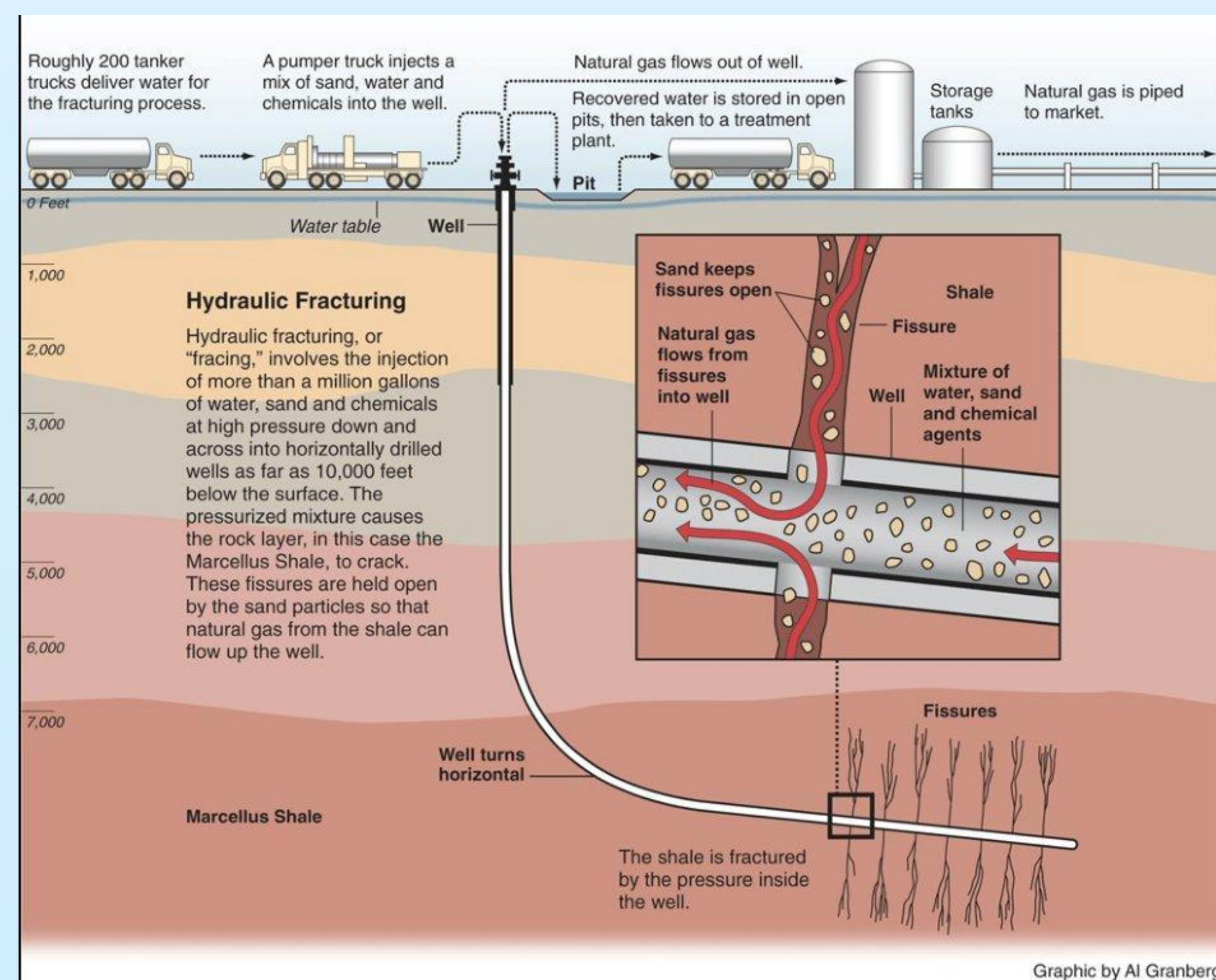


Marcellus Shale & Natural Gas

In Pennsylvania, the Marcellus Shale contains significant amounts of *natural gas* and underlies roughly half the state.



To release natural gas from the shale, drillers use a technique known as hydraulic fracturing, or “fracking”



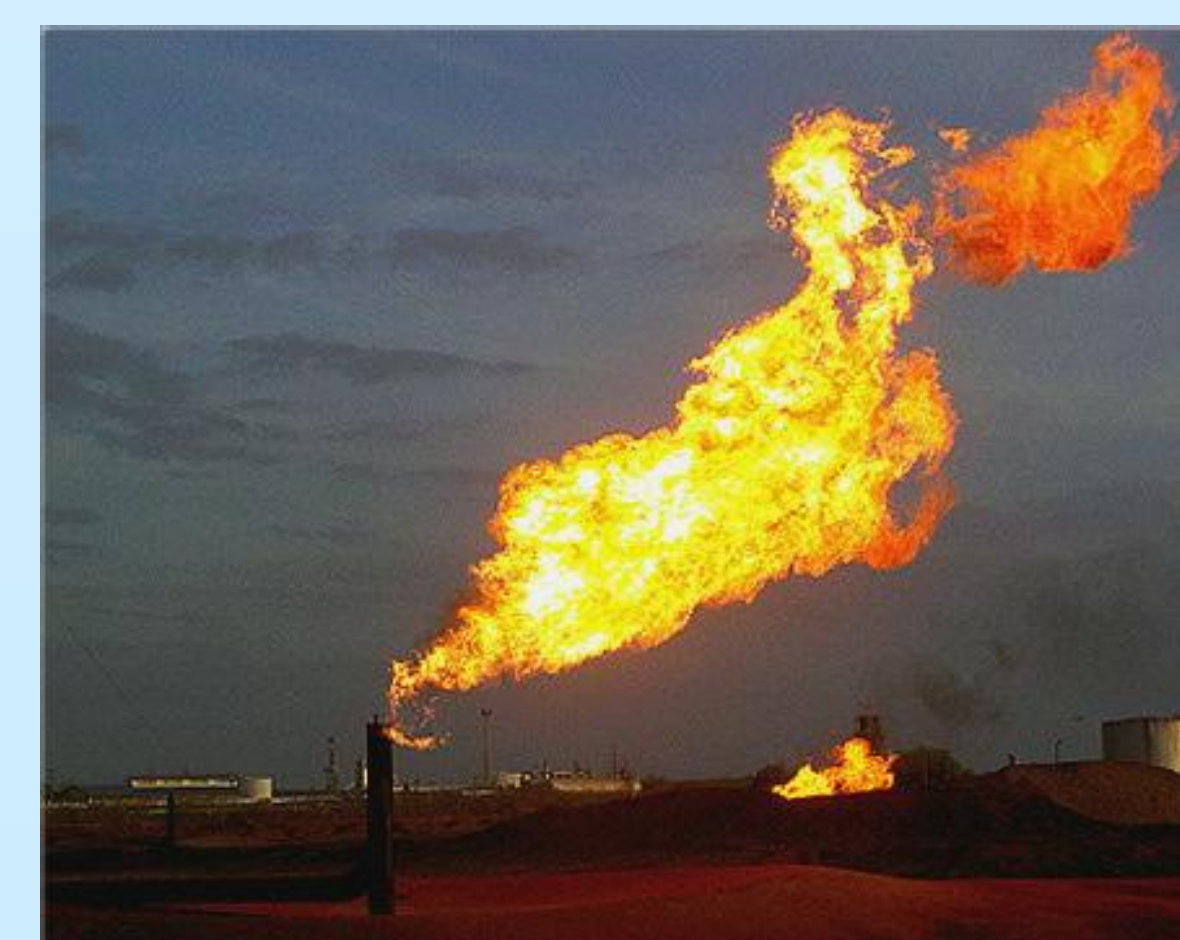
Examples of Chemicals Used in Fracking Solutions

	EPA Maximum Contaminant Level for Drinking water (ppm)	Potential Health Effects from Dose-Related Exposure
Benzene	0.005	Aplastic anemia; leukemia
Ethyl benzene	0.7	Kidney problems, reproductive difficulties
Toluene	1	Cardiovascular and neurological problems
Xylene	10	Neurological problems
Arsenic	0.01	Hypertension
Barium	2	Cardiovascular, dermatological problems; possible carcinogen

Environmental Health Issues

- Potential contamination of water supplies
- Episodic, diminished air quality from “flaring”
- Treatment and disposal of drilling waste
- Impact on stream water levels, aquatic life

This method of drilling and extracting gas has not been proved to be environmentally safe



Precautionary Principle

The American Nurses Association endorses the Precautionary Principle, which guides nurses to “do no harm” and “take preventive action in the face of uncertainty.”

Nurses practicing in areas where drilling occurs can develop environmental health assessments to track potential health impacts

Items on the assessment may include questions about

- proximity of the home to drilling operations
- source of water supply
- testing of private wells
- testing of air quality after “flaring”

References

American Nurses Association, 2007, *ANA's Principles of environmental health for nursing practice with implementation strategies*. Silver Spring, Maryland

Fischetti, M. (2010). The drillers are coming. *Scientific American*, 303(1), 82-85.

Pennsylvania Department of Environmental Protection:
www.dep.state.pa.us/dep/deputate/minres/oilgas/new_forms/marcellus/marcellus.htm