

FRACKED and CRACKED

100 Years of Hydraulic Fracturing in the United States

- Alaska
- Arkansas
- Colorado
- Illinois
- Kentucky
- Missouri
- Montana
- New York
- Ohio
- Oklahoma
- Pennsylvania
- Texas
- Wyoming

Number of Earthquakes

2000
1800
1600
1400
1200
1000
800
600
400
200

1900 1910 1920 1930 1940 1950 1960 1970 1980 1991 1996 2003 2005 2011

Early 1900s
Natural gas extracted from shale wells; vertical wells fracked with foam

Oklahoma & Texas:
First commercial fracking
Stanolind
(Pan American Oil Company)
patents hydraulic fracturing

Clean Air Act
(Nixon Administration)

Clean Water Act
(Nixon Administration)

Safe Drinking Water Act
(Nixon Administration)

Energy Bill passed under the Bush Administration exempting the oil & gas industries from the Safe Drinking Water Act, Clean Air Act, Clean Water Act, and the Superfund Law

First fracking of Marcellus shale

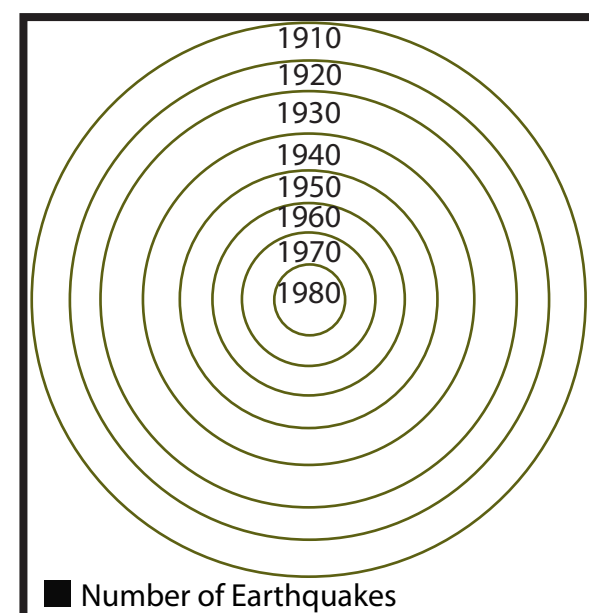
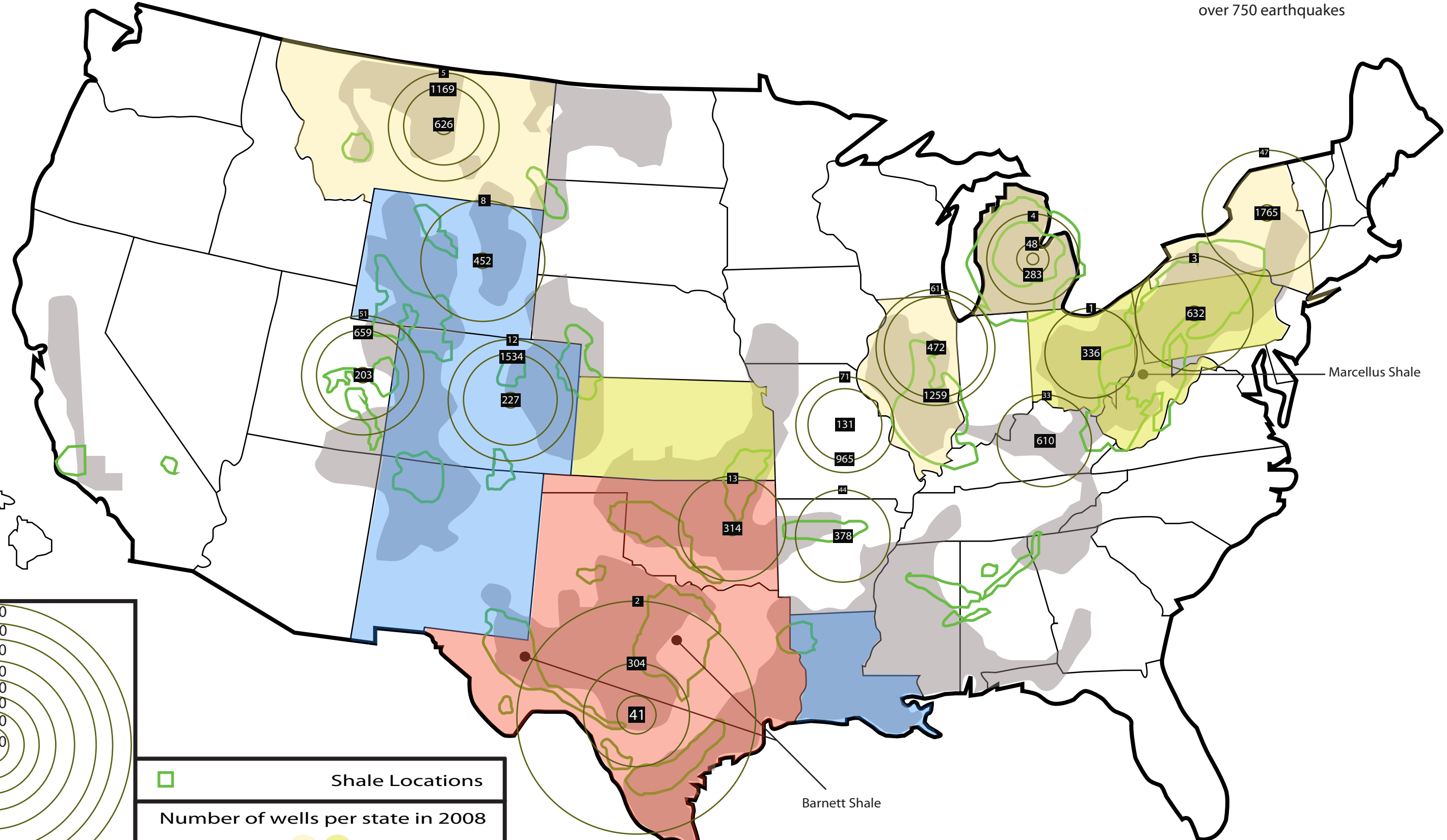
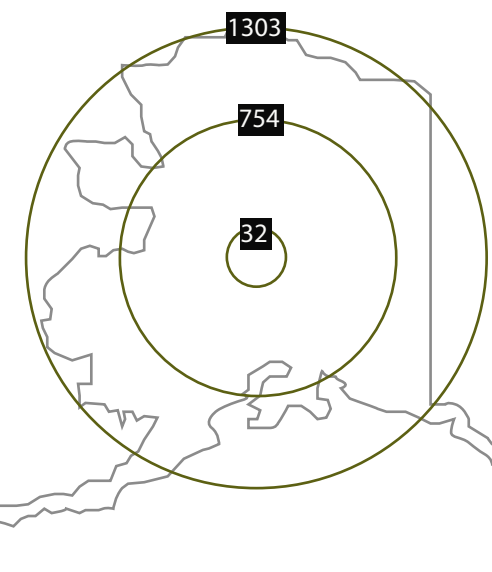
Out of 149 wells in Pennsylvania 41 wells exceed the federal drinking water standard for benzene, 128 wells for gross alpha, 4 wells for uranium and, 42 wells for radium. The wastewater produced by fracturing is contaminated with these chemicals and finds its way into our drinking water. -NY Times*

During the 90s the Oklahoma Geological Observatory reports over 750 earthquakes

1957
Halliburton introduces the HT-400 pump (to be used for the next 50 years)

1953
Stanolind's hydraulic fracturing patent is no longer exclusive to Halliburton: anyone can use their technology

Superfund Law: provides clean up & response to sites contaminated with hazardous substance



Shale Locations	
Number of wells per state in 2008	
10,000 - 15,000	60,000 - 80,000
30,000 - 40,000	100,000 - 250,000