

CENTER FOR BIOLOGICAL DIVERSITY

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Fracking in America: 10 Key Questions

Fracking, or hydraulic fracturing, is spreading across America. But what *is* fracking, really? And what risks does it pose to our health and environment? Why do we believe fracking is so risky for our water, air, wildlife and climate that it should be banned?

1. What is fracking?

Fracking is a method of oil and gas production that involves blasting huge amounts of water, mixed with sand and toxic chemicals, under high pressure deep into the earth. Fracking breaks up rock formations to allow oil and gas extraction. It also pollutes our air, water and climate and endangers wildlife and human health.

2. Where is fracking being done in the United States?

Fracking has been documented in more than 30 U.S. states and is particularly widespread in North Dakota, Pennsylvania and Texas. Fracking is also expanding into new areas, leaving states like California, New Mexico and Nevada facing a potential fracking boom.

3. How does fracking contaminate water?

Fracking requires an enormous amount of water — up to 5 million gallons per well or more. It routinely employs numerous toxic chemicals, including methanol, benzene, naphthalene and trimethylbenzene. It can also expose people to harm from lead, arsenic and radioactivity brought back to the surface with fracking flowback fluid.

About 25 percent of fracking chemicals could [cause cancer](#), according to scientists with the Endocrine Disruption Exchange. Evidence is mounting throughout the country that these chemicals are making their way into aquifers and drinking water.

Water quality can also be threatened by methane contamination tied to drilling and the fracturing of rock formations. This problem has been highlighted by footage of people in fracked areas setting fire to methane-laced water from kitchen faucets.

Water pollution from fracking can happen in variety of ways, including through surface spills and well casing failures. Such accidents are disturbingly common. A fracking boom in North Dakota, for example, has led to thousands of accidental releases of oil, waste water and other fluids, according to a [ProPublica investigation](#).

4. How does fracking pollute our air?

Fracking can release dangerous petroleum hydrocarbons, including benzene, toluene and xylene. It can also increase levels of ground-level ozone, a key risk factor for asthma and other respiratory illness. Air pollution caused by fracking may contribute to health problems in people living near natural-gas drilling sites, according to a [study](#) by researchers with the Colorado School of Public Health.

5. How does fracking worsen climate change?

Fracking often releases large amounts of methane, a highly potent greenhouse gas. Fracked shale gas wells, for example, may have methane leakage rates as high as [9 percent](#). Studies have shown that leakage rates over about 3 percent would make burning natural gas in a power plant even worse for the climate than burning coal.

Fracking also allows access to huge fossil fuel deposits once beyond the reach of drilling. In California, for example, rising oil prices are driving up interest in fracking the Monterey Shale, a geological formation under the San Joaquin and the Los Angeles basins that holds an estimated 15 billion barrels of recoverable shale oil. Oil fracking in North Dakota is already yielding about nearly three quarters of a million barrels of oil a day.

If the fracking boom continues, oil and gas companies will light the fuse on a carbon bomb that will shatter efforts to avert climate chaos.

6. Does fracking cause earthquakes?

There are reports from British Columbia and the United Kingdom that fracking has caused small earthquakes, so there is some risk from fracking itself. Likely the greater problem, though, is induced earthquakes when the wastewater from fracking is disposed of in injection wells. A recent [study](#) in the journal *Geology* points to underground injection as a key factor in a 5.7 quake outside of Prague, Okla., that did hundreds of thousands of dollars in damage to homes.

7. How does fracking threaten wildlife?

Fracking comes with intense industrial development, including multi-well pads and massive truck traffic. That's because, unlike a pool of oil that can be accessed by a single well, shale formations are typically fractured in many places to extract fossil fuels, requiring multiple routes for trucks, adding habitat disturbance for wildlife and more pollution.

Fish die when fracking fluid contaminates streams and rivers. Birds are poisoned by chemicals in wastewater ponds. And the intense industrial development accompanying fracking pushes imperiled animals out of wild areas they need to survive. In California, for example, more than 100 endangered and threatened species live in the counties where fracking is set to expand.

8. Don't state and federal laws protect people and wildlife from fracking?

Fracking is poorly regulated. In 2005 Congress exempted most types of fracking from the federal Safe Water Drinking Act, severely limiting protections for water quality.

The industry has also been free, until recently, to spew essentially unlimited air pollution during fracking. The U.S. Environmental Protection Agency just finalized new Clean Air Act rules called "New Source Performance Standards" that will limit air pollutants from fracked gas wells, but the rules don't cover oil wells, don't set limits on methane release — and won't take effect until 2015.

Some states do little or nothing to regulate fracking. California officials, for example, do not currently even keep track of when or where fracking is done in the state or what chemicals are used in the process.

Inadequate disclosure and poor protections are common features of state laws. In Texas, for example, companies routinely exploit a trade secrets loophole to avoid disclosing what chemicals they're using in fracking fluid. Companies used the Texas trade secrets exemption about [19,000 times](#) in the first eight months of 2012, according to a Bloomberg News investigation.

Even oil and gas companies fracking wells on federally managed public lands are rarely fined for violating environmental and safety rules — and the few fines levied are small compared to industry profits, according to a [2012 Congressional report](#) (PDF).

Fracking pollution occurs even in states with regulations. The best way to protect our water, air and climate is to ban fracking now.

9. But hasn't fracking been done in the United States for many years?

Yes, but today's fracking techniques are new and pose new dangers. Technological changes have facilitated an explosion of fossil fuel production in areas where, even a decade ago, companies couldn't recover oil and gas profitably.

Directional drilling, for example, is a new technique that has greatly expanded access to rock formations. Companies also employ high fluid volumes to fill horizontal "well bores" that sometimes extend for miles. And oil and gas producers are using new chemical concoctions called "slick water" that allow injection fluid to flow rapidly enough to generate the high pressure needed to break apart rock. As fracking methods have changed and fracking has expanded, so has the threat to public health and the environment.

10. How can fracking booms damage infrastructure and create social problems?

Heavy truck traffic associated with fracking in North Dakota has caused extensive damage to state roads. Drilling and fracking a well can require several thousand truck trips per well. North Dakota must spend \$7 billion over the next 20 years to maintain local roads, according to a [2012 study](#).

The North Dakota fracking boom has also led to increased [traffic accident](#) and traffic fatality rates. Hospitals in the state's oil boom area are suffering a [debt crisis](#) fueled by treating workers who don't have health insurance or permanent addresses.