



# GOT WATER?

**Stop hydro-fracking from ruining our water, air and health.**

**Coming to a kitchen sink near you— hazardous flammable tap water—as a method of drilling for natural gas called hydraulic fracturing moves into New York State. While fracking maybe a jackpot for oil & gas companies, fracking has many health, environmental and economic risks for the rest of us.**

## Water Safety

- Over 40 tons of chemicals are injected into the earth's crust to frack each gas well.<sup>1</sup>
- Some ingredients in the fracturing fluid, in undiluted form, can cause kidney, liver, heart, blood and brain damage through prolonged or repeated exposure.<sup>2</sup>
- A loophole in the 2005 Energy Bill exempts gas drillers from EPA guidelines like the Clean Water Act.<sup>3</sup>
- 8.2 million people in NYC get their water from the 2,000 square mile watershed where drilling is occurring.<sup>4</sup>

## Water Use

- Horizontal wells use at least 62.5 times more water than traditional vertical wells—a minimum of 1.5 million gallons is used during drilling.<sup>5</sup>
- Typically, 30–40% of the water used for fracturing returns to the surface highly contaminated.<sup>6</sup> The remainder remains in the ground and is not biodegradable.

## Air Quality

- A percentage of chemicals used in fracturing fluid are converted into airborne toxins. Documented health impacts associated with exposure to some of these chemicals include respiratory harm, brain/neurological harm, and gastrointestinal harm.<sup>7</sup>
- Drilling emits Nitrogen Oxide and Volatile Organic Compounds, resulting in destructive surface smog.<sup>8</sup>

## Traffic

- On average, each well will yield 592 one-way truck trips with some individual vehicles weighing up to 80,000–100,000 lbs when loaded with water or rigging gear.<sup>14</sup>

## Property Rights

- The gas industry estimates Marcellus Shale natural gas reserves are worth \$2 trillion with billions in potential tax revenues to states.<sup>9</sup> However, loopholes and subsidies in the industry's favor mean taxpayers may never realize most of the tax revenue promised.<sup>10</sup> All while property may be increasingly devalued.
- If your neighbors lease to the gas companies and you do not, your property maybe subject to a compulsory integration process mediated by the DEC, whereby the state gives the drilling company the right to take the unwilling seller's mineral resource, with some, non-negotiable, compensation.<sup>11</sup>
- If there is an explosion in your neighborhood as has happened in Dimock, PA,<sup>12</sup> you may not be able to get homeowners' insurance.

## Tree Reduction

- According to the Energy Act of 1992, 1 acre of land sustains approximately 700 trees. An average well pad of 5 acres means about 3,500 trees of mature wooded terrain would be clear cut to accommodate the each new pad.<sup>13</sup>

## Livestock Health

- Reproductive changes, including unexplained, dramatic increases in birth defects, stillbirths and reduced fertility, according to medical testing. One hog farmer estimates his losses at more than \$50,000.<sup>15</sup>

**Sources** Materials prepared by the Columbia University of Urban design & Research Seminar, Spring 2009 and gaslandthemovie.com.

1, 3, 4, 6, 8 Gasland Documentary by Josh Fox. [www.gaslandthemovie.com](http://www.gaslandthemovie.com)

2 US EPA, "Evaluation of Impact to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs," June 2004

5, 14 "Preparing for Natural Gas Development: Understanding Impacts And Protecting Public Assets," A Gas Drilling Research Task Force Report For Sullivan County, February 13, 2009

7 "Products and Chemicals Used in Fracturing," Endocrine Disruption Exchange of Paonia, CO, February 2009

9 Timothy Considine of Wyoming's Natural Resource Economics Inc., report was done for the American Petroleum Institute, July, 2010

10 S. Lazzari, "Oil and Gas Tax Subsidies: Current Status and Analysis," CRS Report for Congress, February 27, 2007. <http://price.house.gov/issues/uploadedfiles/energy2.pdf> (accessed May

2009) Joint Committee on Taxation, "Renewable Energy and Energy Conservation Tax Act of 2007," Annual Tax expenditure Reports, June 19, 2007. <http://www.house.gov/jct/x-36-07.pdf> and <http://www.house.gov/jct/x-59-05.pdf> (accessed May 2009)

11 DEC dsSGEIS: Supplemental Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Regulatory Program: Well Permit Issuance for Horizontal Drilling and High-Volume Hydraulic Fracturing to Develop the Marcellus Shale and Other Low-Permeability Gas Reservoirs

12 L. Legere, "DEP Probes Blast in Gas-Drilling Region," Scranton Times-Tribune, January 3, 2009

13 US Energy Act, 1992

15 A. Mall, "Oil and gas impacts on livestock health?" NRDC, Boulder Colorado, May 5, 2009

## What is Horizontal Hydro-fracturing?

Horizontal hydrofracking or fracking is a means of tapping shale deposits containing natural gas that were previously inaccessible by conventional drilling. Once a well is drilled, millions of gallons of water, sand and proprietary chemicals are injected, under high pressure, into wells. The pressure fractures shale, creating fissures that enable natural gas to flow more freely.

Horizontal fracking differs from vertical drilling in that it uses a mixture of some 596 chemicals, many of them proprietary, mixed with millions of gallons of water per frack. Frack water then becomes contaminated and must be cleaned and disposed of.



**Tap water catches fire, from the documentary *Gasland*.**

*Image used with permission by Josh Fox, Director of Gasland, 2010*

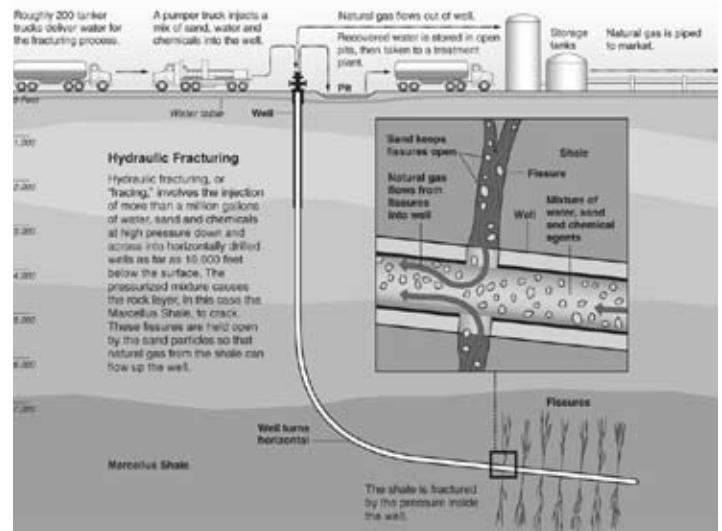
In 1974, the Safe Drinking Water Act (SDWA) was passed by Congress to ensure clean drinking water free from both natural and man-made contaminants. In 2005, the Bush/Cheney Energy Bill exempted natural gas drilling from the Safe Drinking Water Act. It exempts companies from disclosing the chemicals used during hydraulic fracturing. Essentially, the provision took away Environmental Protection Agency (EPA) oversight. The exemption is commonly referred to as the Halliburton Loophole.

The average well is up to 8,000 feet deep. The depth of drinking water aquifers is about 1,000 feet. Problems typically stem from poor cement well casings that leak natural gas as well as fracking fluid into water wells.

Generally, 1-8 million gallons of water may be used to frack a well. A well may be fracked up to 18 times. For each frack, 80-300 tons of chemicals may be used. Presently, the natural gas industry does not have to disclose the chemicals used, but scientists have identified volatile organic compounds (VOCs) such as benzene, toluene, ethylbenzene and xylene. The gas comes up wet in *produced water* and has to be separated from the wastewater on the surface. Only 30-50% of the water is typically recovered from a well. This wastewater can be highly toxic.

Wastewater evaporators evaporate off VOCs and condensate tanks steam off VOCs, 24 hours a day, seven days a week. The wastewater is then trucked to water treatment facilities. As the VOCs evaporate and come into contact with diesel exhaust from trucks and generators at the well site, ground level ozone is produced. Ozone plumes can travel up to 250 miles.

**Source** What is Horizontal Hydro-Fracturing?: Material prepared by Gasland. [www.gaslandthemovie.com/](http://www.gaslandthemovie.com/)



Graphic by Al Granberg

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## How can we protect New York State?

### Attend EPA Hydraulic Fracturing Study Public Meeting August 12, 2010

8am – 12pm (pre-registration begins at 7am); 1pm – 5pm (pre-registration begins at 12pm); 6pm – 10pm (pre-registration begins at 5pm)

**Binghamton University, Anderson Center for the Performing Arts, Osterhout Concert Theater**

Registration: <http://hfmeeting.cadmusweb.com/RegistrationForm.aspx>

**The FRAC Act** (Fracturing Responsibility and Awareness to Chemical Act) is a House bill intended to repeal the Halliburton Loophole and to require the natural gas industry to disclose the chemicals they use. Call and email your elected officials.

**Host a Gasland party:** Invite friends to watch *Gasland*, a documentary by Josh Fox. Order it at HBO on demand. Get party kit at [www.gaslandthemovie.com](http://www.gaslandthemovie.com).

### Resources for news and action

**Frack Action:** [www.frackaction.com](http://www.frackaction.com)

**Gasland:** [www.gaslandthemovie.com](http://www.gaslandthemovie.com)

**Shale Shock:** [www.shaleshock.org](http://www.shaleshock.org)

**Sierra Club Altantic Chapter:** [www.newyork.sierraclub.org](http://www.newyork.sierraclub.org)

**Un-natural Gas:** [www.un-naturalgas.org](http://www.un-naturalgas.org)

## Your vote Tuesday, November 2, 2010 will make a difference.



### David Sager for NYS Senate, 42<sup>nd</sup> District

David Sager, a Sullivan County legislator, has been at the forefront of the fracking issue since 2008. He is committed to protecting New York States water and air. As NYS Senator David would fight for a moratorium on gas drilling until full disclosure and studies are complete.

[www.SagerforSenate2010.com](http://www.SagerforSenate2010.com)



### Maurice Hinchey for US Congress, 22<sup>nd</sup> District

In 2009 Congressman Maurice Hinchey proposed 11 steps to be undertaken before drilling is permitted in New York including a prohibition on the use of toxic chemicals in all fracturing fluids and a cumulative impact analysis. Currently, he is fighting to reverse the 2005 loophole exempting oil and gas companies from the Clean Air and Water Acts requirements.

[www.HincheyforCongress.org](http://www.HincheyforCongress.org)



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