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# Water Overuse & Contamination from Hydraulic Fracturing

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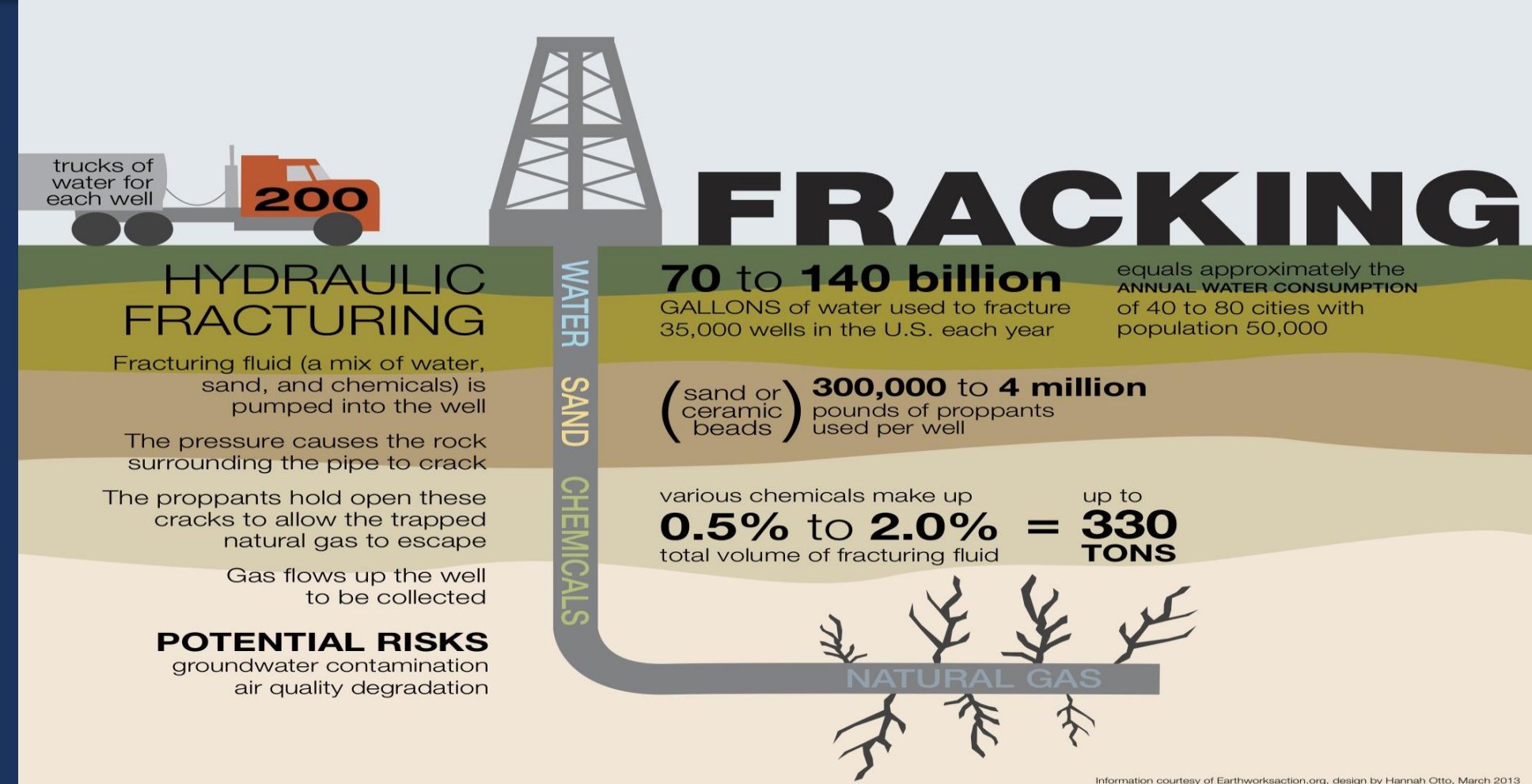
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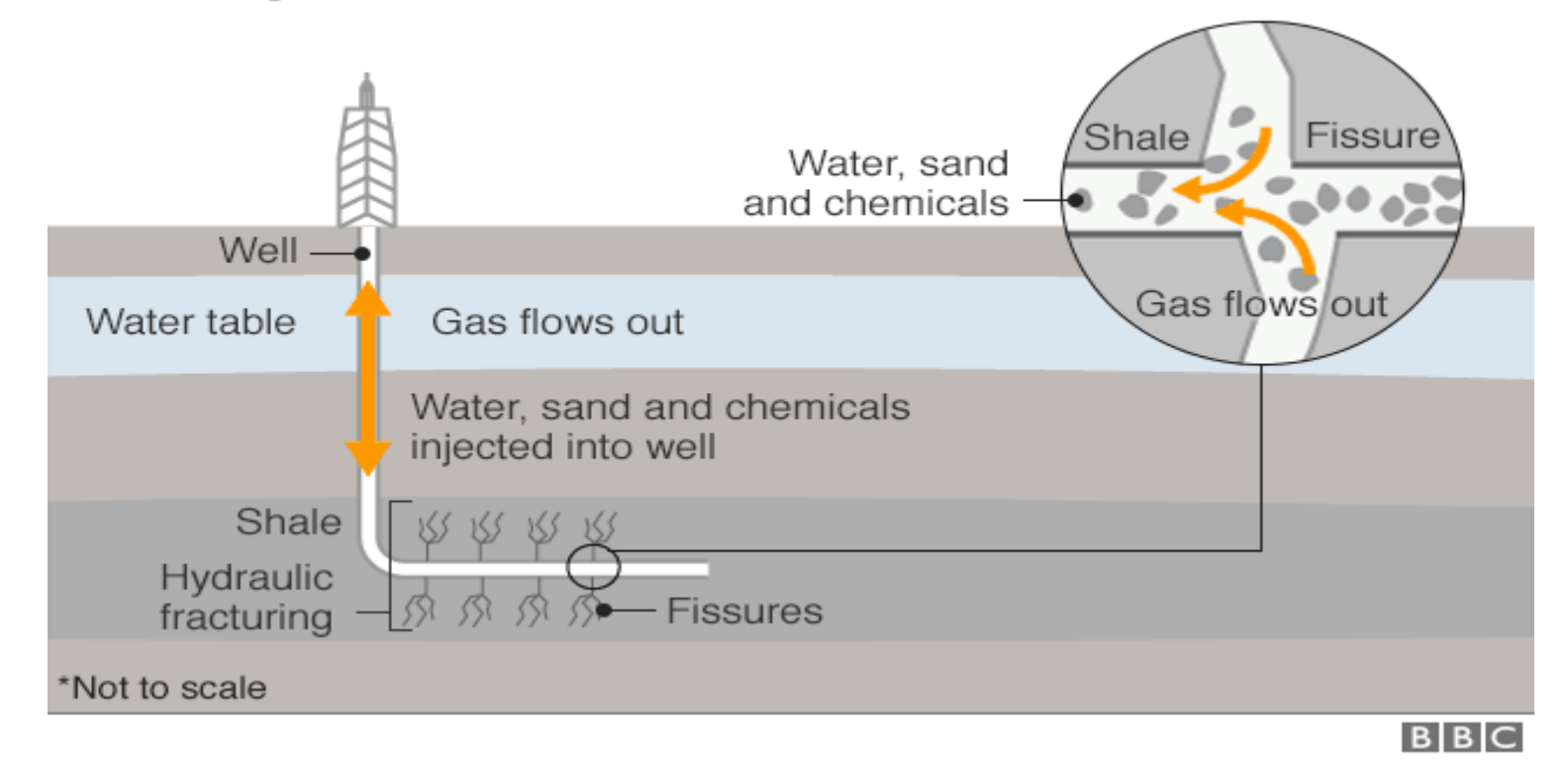
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## Current State of Hydraulic Fracturing:

- Exempt from: Safe Drinking Water Act, Clean Water Act, Clean Air Act, Resource Conservation and Recovery Act, and the National Environmental Policy Act.
- No limit on how much water allowed to use (uses 70-140 billion gallons annually)
- Not required to disclose toxic & radioactive chemicals in the fluid

Shale gas extraction



## What is 'Fracking'? Why is it Bad?

Hydraulic fracturing shatters shale beds, opening up cracks through which the oil and natural gas can flow into wells that is brought to the surface. The fracturing of shale is initiated by pumping fluids into the rock at very high pressures. Fracking is the cause for severe water contamination, along with water overuse, Water contamination from fracking is extremely dangerous since the public is not aware of the hundreds of chemicals used in the fluids. The fracking industry is exempt from multiple laws that protect the environment and water, so they are not responsible for any water contamination due to these undisclosed chemicals, nor overuse. Lastly, fracking uses billions of gallons of water annually which threatens the water supply for millions of people.

## Data Results

Type of Test	Acceptable Range; EPA	Measured Amount	Analysis: high, normal, low
Volatile: Benzene	5 ppb	Avg: 3500ppb 700x higher than federal limit	high
Toxins: Arsenic:	0.010ppm	0.28ppm	High
Lead:	15ppm	0.10ppm	Low
Contaminants: Radon	1,369Bq/mm <sup>3</sup>	37-2,923 Bq/m <sup>3</sup>	High
Radium	135 Bq/m <sup>3</sup>	91,020 Bq/m <sup>3</sup>	High
Uranium	30 µg/L	3700-40,000 µg/L	High

### Environmental Lawyer:

From this point of view, I would look to understand the high levels of toxins, volatiles and contaminants in the public and private water wells due to infiltration of fracking fluid; this will allow a stronger and well-developed case to pass laws that aim to protect water. If I were able to pass amendments that required fracking companies to follow the above laws, then I would ensure that the companies adhere to the restrictions. Overtime, remediation efforts will return the water to normal with fracking fluids no longer threatening the resource.

### Hydrologist:

In this position I would look to study the distribution and quality of ground water. I would conduct research on the amount of water used, and also run tests on the wells surrounding fracking sites. I would also predict how quickly our water supply were to run out if we continue taking advantage of the resource as we are now. Looking at the contaminants, I would predict the rise in medical issues in areas with active gas wells near their water supply.

### Short Term Solution:

The fracking industry should be required to follow the Clean water Act laws they are currently exempt from.

The Effects: these fracking companies would be required to disclose the chemicals they use in the water to frack. Also, it will force them to be more aware of the leakage of contaminated fracking fluid that infiltrates into the surrounding water wells; water wells that are used publicly and privately. Overall, of water contamination should decrease as the natural gas industry becomes legally responsible for remediating any water contamination and overuse.

### Long Term Solutions:

The fracking companies should be limited to a certain amount of water for their operating wells, which decreases annually. In addition, the government subsidizes sustainable energy like wind, water and solar, to encourage the energy sector to begin transferring to renewable energy.

The Effects: Overtime, the amount of water wasted for fracking decreases and the probability of a water shortage crisis becomes less likely. As the energy industry is encouraged to switch to sustainable energy, we see the market for renewables widen. This is advantageous to the economy as instead of the millions that are being poured into fracking stay in an area that will not be successful forever, it will transfer to an area of clean, sustainable energy which will encourage job growth, investment and a cleaner environment for all.



# Sources

- Alemayehu, B. (2016, December 15). *Radon and Fracking: A New Study*. Retrieved from <https://www.nrdc.org/experts/bemnet-alemayehu/radon-and-fracking-new-study>
- Cart, J. (2015, February 11). *High levels of benzene found in fracking waste water*. Retrieved from <https://www.latimes.com/local/california/la-me-fracking-20150211-story.html>
- *Dangerous Fracking Chemicals*. (n.d.). Retrieved from <http://frackinginjurylaw.com/dangerous-fracking-chemicals/>
- Fox, J. (Producer). (n.d.). Gasland [Video file]
- Greenwood, M. (2018, September 27). *Toxins found in fracking fluids and wastewater, study shows*. Retrieved from <https://news.yale.edu/2016/01/06/toxins-found-fracking-fluids-and-wastewater-study-shows>
- Lutgens, F. K., & Tarbuck, E. J. (2000). *Essentials of Geology*. Upper Saddle River, NJ: Prentice Hall
- Mark Heuer, & Shan Yan. (2017). *Marcellus Shale Fracking and Susquehanna River Stakeholder Attitudes: A Five-Year Update*. Sustainability, Vol 9, Iss 10, p 1713 (2017), (10), 1713. <https://doi.org/10.3390/su9101713>
- *NRDC Policy Basics: Fracking*. (2013, February). Retrieved November, 2018, from <https://www.nrdc.org/sites/default/files/policy-basics-fracking-FS.pdf>
- Raimi, D. (2017). *The Fracking Debate : The Risks, Benefits, and Uncertainties of the Shale Revolution*. New York: Columbia University Press. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,sso&db=nlebk&AN=1640589&site=eds-live&authtype=sso&custid=s8475574>
- Scott, M. (2018, October 19). *Clean Power Is Growing Fast. Now We Need Clean Heat And Clean Transport*. Retrieved from <https://www.forbes.com/sites/mikescott/2018/10/19/clean-power-is-growing-fast-now-we-need-clean-heat-and-clean-transport/#46638b999a03>
  
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