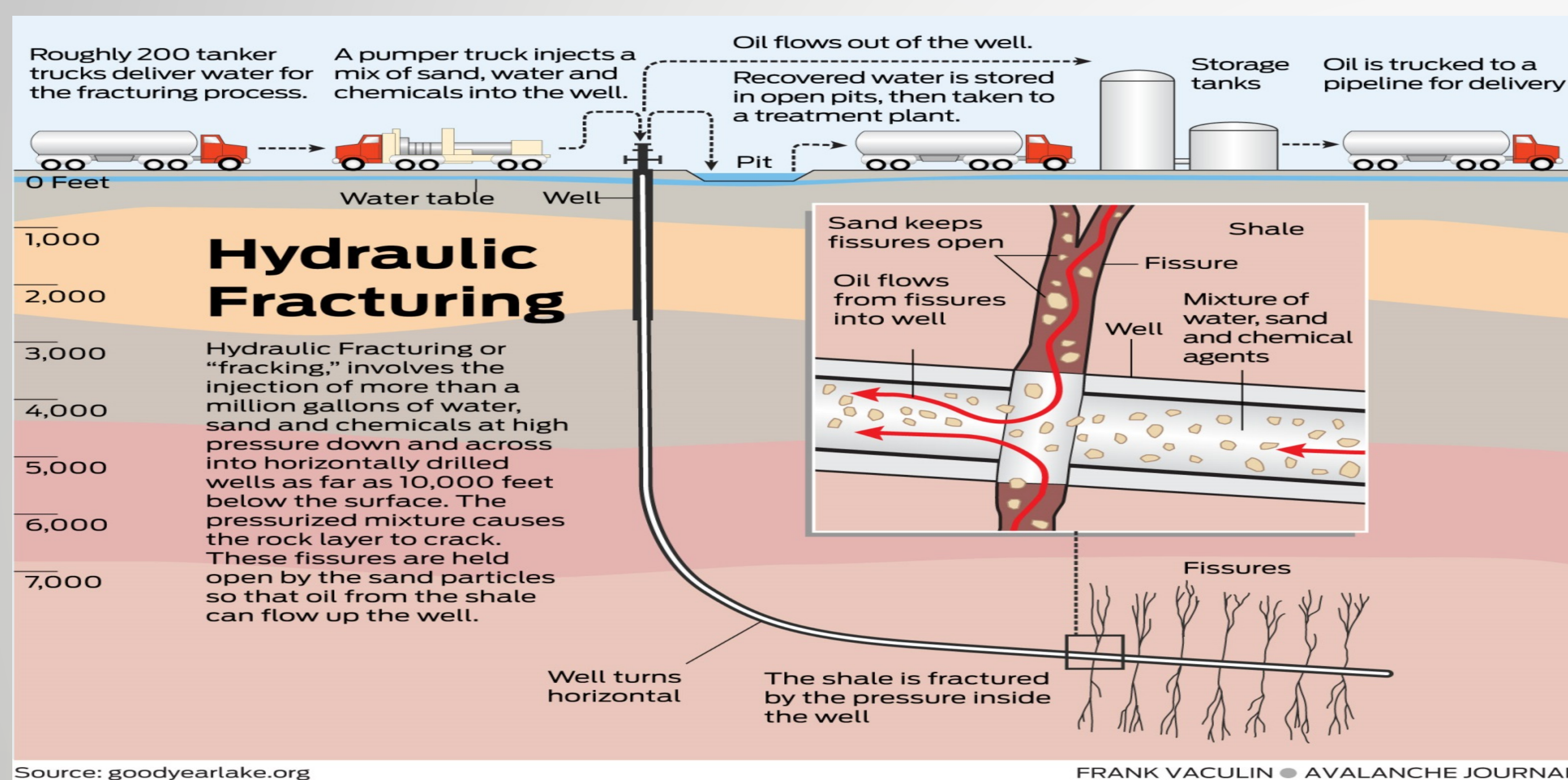


Oil & Gas Development



This project examined many aspects of the oil and gas industry with the primary focus on the environmental harms and health concerns caused by hydraulic fracturing. Oil and gas developments using hydraulic fracturing and new technology can now reach supplies that were once impossible. By doing so, these industries are now supplying millions of jobs and producing huge economic returns. However, there is also concern that hydraulic fracturing is damaging the environment and health of citizens. This poster will capture viewpoints of the environmentalist concerns of the oil and gas industry while also displaying what is being done to address these issues.

Hydraulic Fracturing... What is it?



Environmentalist: Health & Environmental Concerns

1. Drinking water contamination, as seen in Pavilion, Wyoming, evidenced as brown well water after gas fracking developments started.
 - The gas companies in this area supplied those effected with clean drinking water
2. Millions of gallons of water required for each well "fracked"
 - Chesapeake Energy states that approximately 4-5 million gallons of water are used based on the shale formations
3. Poor air quality polluted with cancer causing toxins and increase of greenhouse gases
 - Benzene, a known carcinogen is heavily emitted by oil and gas refineries
4. Heavy equipment transportation has caused road maintenance problems
 - This issue is effecting poorer counties that cannot cover the cost of road maintenance such as Karnes County near the Eagle Ford Shale



Attempts to Address Environmentalist Concerns

1. The EPA began an in depth study of water contamination in Pavilion, Wyoming after brown well water complaints from residents. The draft report listed the following:
 - The EPA drilled two wells each 1000ft to monitor and test the water supply. Each well had contaminated water, testing positive of benzene and other suspected carcinogens. The EPA also found that wells of residents contained chemicals known to be incorporated in fracking fluids
 - The EPA's draft report directed blame on the oil and gas industries waste and abandoned pits, providing relevance to many feared issues of fracking
 - The EPA's draft report lead to congressmen, the oil and gas industry and others questioning the scientific methods and testing by the EPA, resulting in the termination of this 2 year study
2. States including Texas require water usage for each well to be reported to the Railroad Commission for closer monitoring of water consumption
 - Oil and Gas companies such as Chesapeake Energy have started fracking with recycled brackish water and saltwater to reduce groundwater consumption
3. EPA has passed new regulation docket # EPA-HQ-OAR-2010-0505, effective in 2015 requiring the capture of methane, VOCs and other carcinogens such as benzene
 - The oil and gas industry will increase their capture of natural gases by complying to this regulation in turn creating a profit while helping improve air quality
4. States are using their rainy day funds made up of various taxes collected including those of the oil and gas industry to pay for road maintenance for counties that cannot fund these operations
 - Due to the extensive maintenance cost, roads highly trafficked in the counties surrounding Eagle Ford will be converted to gravel roads, lowering the speed limit from 70 mph to 35 mph to reduce required funding for continuing upkeep

Conclusion

There is still much to learn about the effects fracking has on our health and environment. Congress has stepped into the equation by ordering the EPA to conduct sound scientific research to determine if fracking is contaminating drinking water supplies. These findings will be released in 2014. In the meantime many states such as Texas have taken corrective action. The Texas Railroad Commission is enforcing stronger regulations and requirements on well construction to reduce any possibility of drinking water contamination. Although there are huge costs for states as seen in the road issues surrounding the Eagle Ford area, there is still much monies to be made by these industries. Unless states start opposing hydraulic fracturing practices as New York has, the oil and gas industry will continue to dominate the playing field as allowed by the government, politicians and anyone else that stands to make a quick dollar.

References

- http://lubbockonline.com/Squeezing_Shale
- <http://lubbockonline.com/local-news/2012-06-05/squeezing-shale-air-pollution-threat-fracking#.UfKZNSgo6M8>
- <http://why.org/cms/radiotimes/2012/05/14/fracking-update/>
- <http://www.rferl.org/content/us-oil-production-shale-change-world-energy-market/24774453.html>
- <http://www.rrc.state.tx.us/about/faqs/hydraulicfracturing.php>
- <http://www.globalpossibilities.org/epa-abandons-fracking-study-in-pavilion-wyoming-following-similar-closed-investigations/switchboard.nrdc.org>
- <http://www.propublica.org/article/feds-link-water-contamination-to-fracking-for-first-time>
- <http://www.epa.gov/airquality/oilandgas/pdfs/20120417fs.pdf>
- <http://www.chk.com/Corporate-Responsibility/EHS/Environment/Water/Pages/Aqua-Renew.aspx>

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