

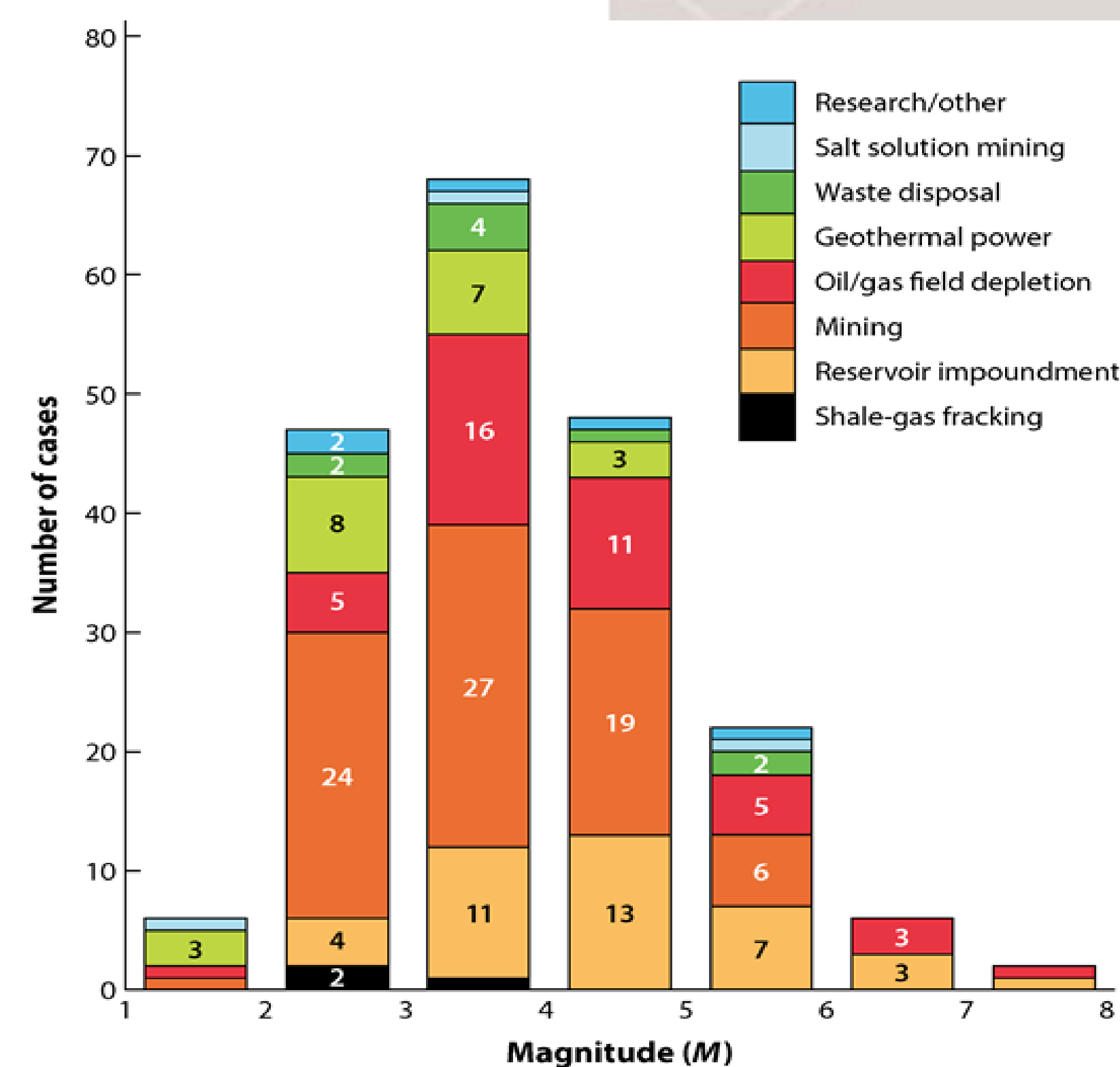
## Abstract

Natural gas and crude oil are critical issues in the areas of energy, economy and the environment. One major source of natural gas production is hydraulic fracturing, however recently this method of production has caused varied crude oil prices and an increase of environmental contamination risks. This process, over the years, has led to a drop in the price of oil by a dollar or two. The reason this has happened is because of the method of shipping the natural gas across the nation is cheaper price wise, thus in correlation making the price of oil cheaper as well. We found out that other forms of energy, i.e. solar, wind, and water. These alternative fuel sources may lead to less dependency on crude oil and natural gas, in turn balancing out economic factors while improving environmental factors.

## Introduction

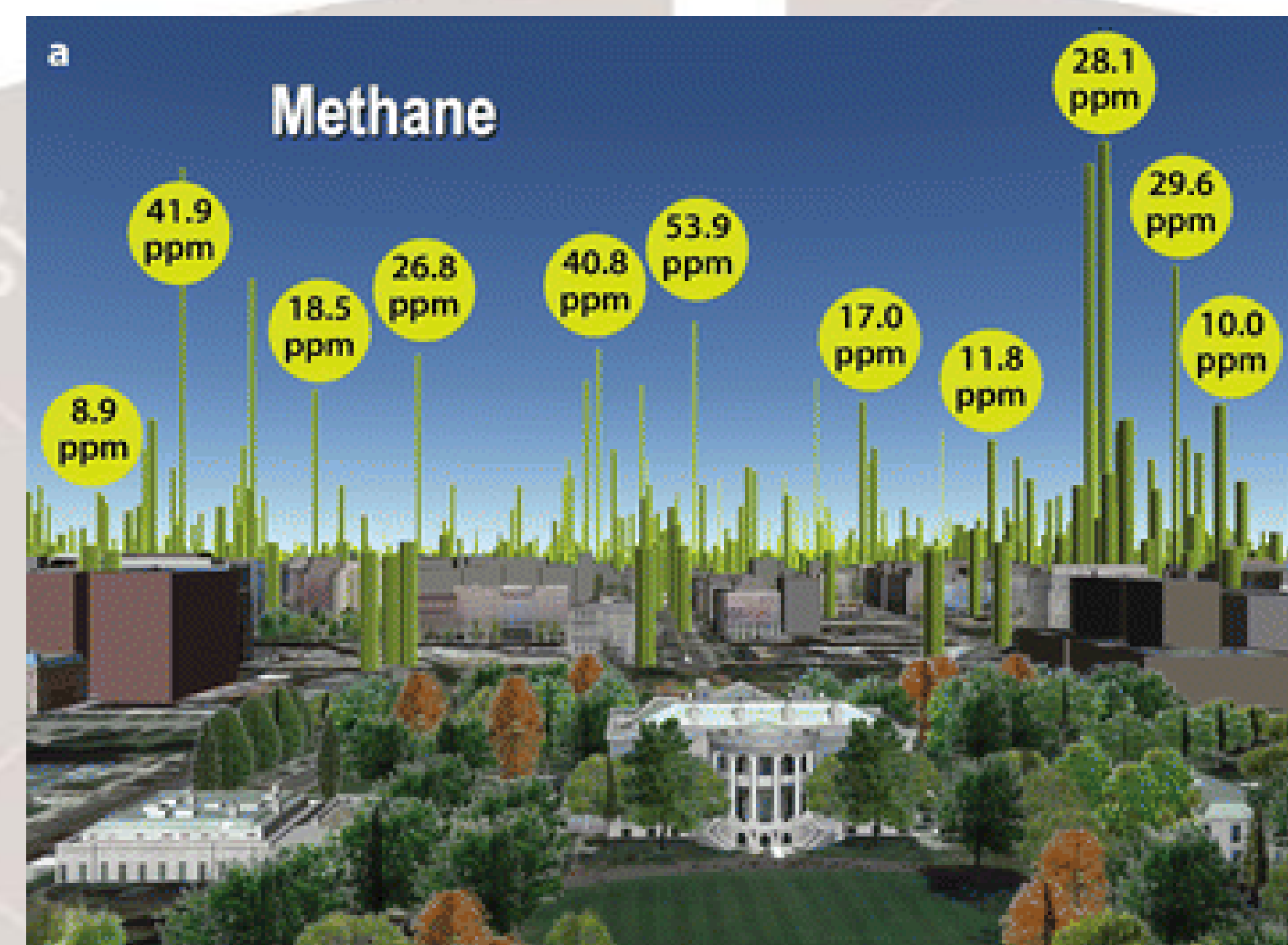
Fracking is the process of drilling deep under the earth's surface to release the gas inside. Our group looked into this industry and measured its side effects on the environment and the economy. Our theory is that continuous fracking has led to significant changes in the environment in the form of man made disasters and may have led to the onset of an economic decline.

## Data

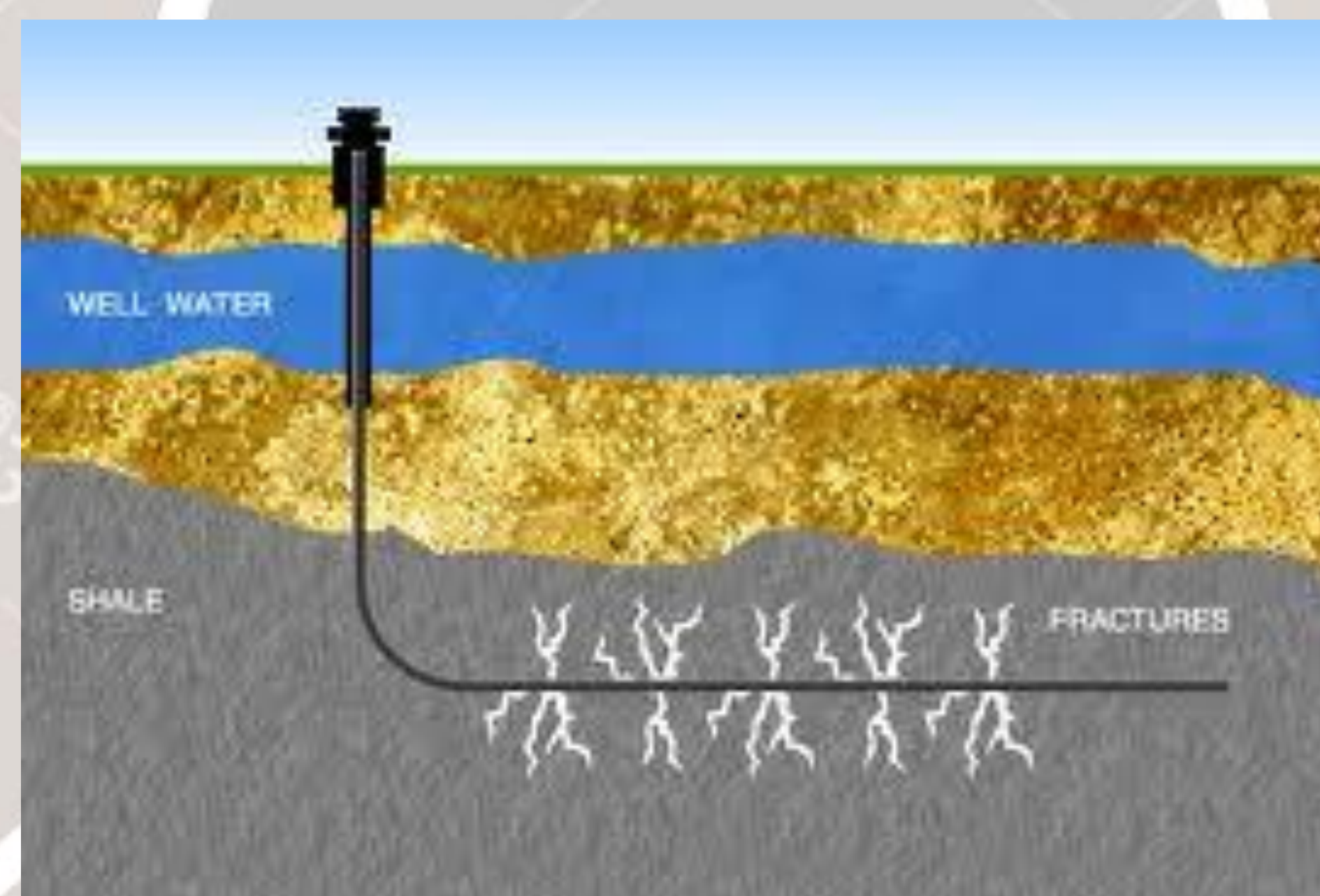


Jackson RB, et al. 2014. Annu. Rev. Environ. Resour. 39:327-62

Around 1-2 earthquake casualties have been attributed to shale and gas fracking. The cracks made by earthquakes cause excess chemicals to seep into ground water, which can then contaminate drinking water, which can cost a company millions of dollars to clean up. Many earthquakes have been reported near and around fracking drill sites. These earthquakes cost the drilling companies and the States money that could be used elsewhere.



Exploration, drilling, and production can cause emissions of methane (CH<sub>4</sub>) and other air pollutants into the atmosphere. New methane mapping technologies have allowed researchers to publish the first maps of pipeline leakage of natural gas across cities. This leakage, though, means messy clean up jobs that can take months and maybe thousands of dollars to complete.



Hydraulic fracturing can cause groundwater contamination. Many toxic chemicals may be able to seep through cracks in pipes. Some chemicals that may be able to seep are SO<sub>2</sub>, CO<sub>2</sub>, NO<sub>x</sub>, and H<sub>2</sub>S. Sulphur dioxide is hazardous to the public health if not prevented or cleaned up quickly when a leakage takes place.

## Conclusion

Many issues in dealing with hydraulic fracturing are hard to solve because not a lot of information is readily available to the public, especially how money is spent. This causes suspicions amongst the public and results in trust issues with the industries and even the government. To fix this, more information needs to be made available to the public, helping them to be involved in the political choices involving fracking. The States are limited in how they can enforce and make environmental laws and this makes it harder for regulations to take place and be enforced. This has led to many issues with extraction and disposal of fracking wastewater, which can cause contaminated groundwater. The federal government needs to allocate more authority to the States so they can develop and enforce focused environmental laws. This will help gain more public trust and the reduce environmental impact.

## References

Jackson, Robert B., et al. "The Environmental Costs And Benefits Of Fracking." *Annual Review Of Environment & Resources* 39.1 (2014): 327-362. *Academic SearchComplete*. Web. 6 Apr. 2015.

Rosenberg, Andrew A., et al. "Exposing Fracking To Sunlight." *Issues In Science & Technology* 31.1 (2014): 74-79. *Academic Search Complete*. Web. 6 Apr. 2015.