HYDRAULIC FRACTURING: An Under-Regulated Disaster

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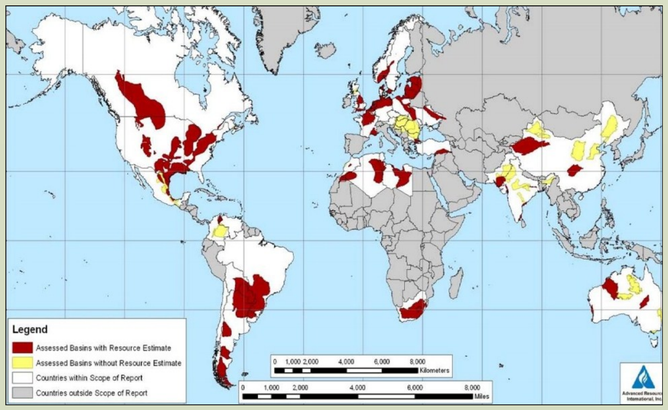
ABSTRACT

Shale gas became economically viable to extract due to a combination of horizontal drilling and hydraulic fracturing. Pressurizing shale rock with a mixture of water, sand, and chemical additives, hydraulic fracturing or "fracking" creates channels for natural gas trapped in shale to escape. This enables industry to collect and distribute that gas. Although hydraulic fracturing is responsible for major breakthroughs in natural gas availability, rising concerns about environmental consequences are surfacing. Environmental impacts such as groundwater contamination, landscape disruption, and air pollution are the main focus of the opposition to fracking. An analysis of literature review and data indicates that hydraulic fracturing is an unsustainable response to the high demand for energy. The environmental implications and the lack of knowledge related to fracking pose a substantial amount of concern that far outweighs the economic benefits.



There are proven shale gas basins around the world. Hydraulic fracturing as a process of natural gas extraction is most prevalent in the United States however, with resources found in other countries, fracking has the potential to exponentially expand.

METHODS

Literature Review– Reviewed scholarly articles and reports done by the United States Environmental Protection Agency, press releases from Halliburton, IHS Cambridge Energy Research Associates, Chesapeake Energy, API Energy, journal articles from Nature and the New York Times, research done by Duke University, a case study evaluating hydraulic fracturing in Texas, the Revised SGEIS from the New York Department of Environmental Conservation, and examined current environmental laws.

Data Analysis– Analyzed energy statistics data from the United States Energy Information Administration in order to assess the current consumption amounts around the world.

Consults with Experts– Discussed current mineral rights and land ownership with a legal professional and spoke to an expert in environmental social justice.

FINDINGS

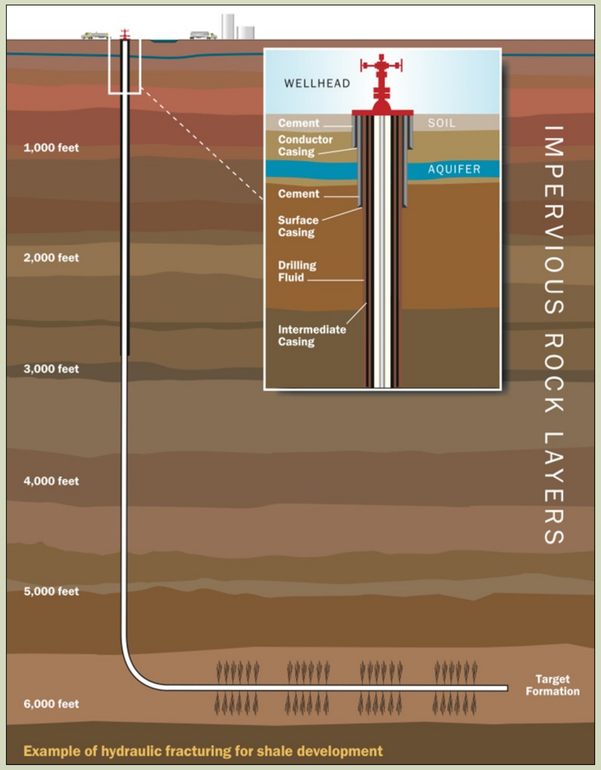
Due to the high amount of controversy over hydraulic fracturing there has been a wide variety of research completed. Many of the environmental implications due to hydraulic fracturing are based on anecdotal testimony which have not yet been thoroughly tested and confirmed.

Proven Environmental Impacts:

- Flow Back Fluid Leakage (Spills)
- Landscape Disruption
- Water Use
- Air Quality

Hydraulic fracturing is economically viable but there are many unknown factors involved.

Regulation and policies are coming under close scrutiny and critical adjustments are being proposed. The EPA is in the process of conducting a study investigating whether there is a link to the hydraulic fracturing process and groundwater contamination. The results will not be completed for another year. With residents claiming severe health conditions have been caused by fracking processes, the research is still not completed yet hydraulic fracturing operations continue.



Hydraulic fracturing wells are drilled to an average depth of 6,000 feet below the ground. Steel and cement casings are installed, then penetrated. Fracking fluid pressurizes the well and is then removed. The sand contained in the fluid props the fissures in the shale open, allowing the natural gas to move freely and be collected.

Hydraulic fracturing has already been implemented around the world without full knowledge of the implications.

CONCLUSION:

Because hydraulic fracturing is gaining such rapid popularity, any consequences will continue to be dramatically amplified. Fracking has proven to be economically logical however the detrimental impacts to the environment and human justice provide more insight to the practice. Hydraulic fracturing well sites, just as many other locally unwanted land uses, follow a path of least resistance. Therefore, the poor are the most likely to suffer potential consequences due to their close proximity. "The controversy will probably drive drillers toward discovery and use of non-toxic alternatives for fracking chemicals whenever possible. Fear of liability will impel this shift probably as much as the desire to avoid costly and time consuming conflict." Solutions to prevent further environmental degradation due to fracking are possible. Current regulation is not adequate to address the damaging effects experienced by the surrounding environment.

- The findings from the study being done by the EPA will not be presented until 2012. Until then, a moratorium needs to be placed on fracking. Legislation needs to call for a mandatory complete release of the chemicals used during hydraulic fracturing.
- The EPA needs to develop an all-encompassing analysis of the consequences due to hydraulic fracturing and natural gas extraction before operations continue. A life cycle analysis needs to be completed to fully assess all effects of extracting natural gas through fracking.

FURTHER INFORMATION

"Revised Draft: Supplemental Generic Environmental Impact Statement On the Oil, Gas, and Solution Mining Regulatory Program: Well Permit Issuance for Horizontal Drilling." New York Department of Environmental Conservation. http://www.dec.ny.gov/data/dmn/rdsgeisfull0911.pdf

Advisory on EPA's Research Scoping Document Related to Hydraulic Fracturing." *United States Protection Agency.* June 24, 2010. http://yosemite.epa.gov/sab/SABPRODUCT.NSF/CC09DE2B8B475571852577 4D0044F929/$File/EPA-SAB-10-009-unsigned.pdf

Acknowledgements: Advisor Derek Larson, Faculty Reader Troy Knight, Peer Reviewer Hannah Froehling