



Frack Attack—Environmentalists and Hollywood Renew Attacks on Hydraulic Fracturing

Jonathan A. Lesser

Environmental groups have been trumpeting a new study by the US Geological Survey (USGS), which they claim “proves” the US Environmental Protection Agency’s (EPA’s) concerns about hydraulic fracturing, or “fracking.” In a September 30, 2012, press release, for example, the Sierra Club—an environmental group whose motto could be “whatever it is, we’re against it”¹—claimed that the USGS study “strongly suggests that as a result of fracking, gas is seeping into” the water supply in the town of Pavillion, Wyoming.²

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Not to be outdone, Hollywood actor Matt Damon has been flogging his movie, *Promised Land*, which will be released this month and was financed, in part, by a company owned by the United Arab Emirates. The movie revolves around evil oil and gas producers who—well, you can imagine the

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rest—and is loosely based on a now thoroughly discredited EPA study that fracking contaminated groundwater in Dimock, Pennsylvania.³

These latest attacks on fracking raise several important issues, although Hollywood releasing yet another “business is eee-vil” movie is probably not one of them. What is important is the apparent mischaracterization by the Sierra Club and other environmental groups regarding the EPA’s water-quality studies and what the most recent USGS study means.

SPILLED ON THE GROUND OR BUBBLING UP FROM BENEATH?

If one is going to address groundwater contamination, it helps to first determine the source of the contamination. In the case of fracking, there are two potential sources: (1) contamination from surface water, such as fluid leaking from the well-drilling equipment; and (2) contamination because either fracking fluids or natural gas (and natural gas liquids) migrate from drilled wells into groundwater above.

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called “groundwater.” Thus, regulations that help ensure surface spillages and containment of fluids (for example, gasoline from vehicles) that spill accidentally are reasonable and appropriate.

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Whether natural gas compounds and fracking fluids migrate upward from wells drilled thousands of feet below ground to groundwater supplies several hundred feet below the surface is quite another matter. One of the reasons shale gas has, until recently, been uneconomic to develop is because shale is “tight.” That is, shale, which is a type of sedimentary rock, is not porous. Consequently, simply drilling a well into a shale formation will not release natural gas because the gas molecules are trapped within the formation and cannot migrate easily. The way to increase the porosity of the rock is to break or “fracture” it using high-pressure fluids.

EPA TEST WELLS SHOW BIASED RESULTS UPON USGS ANALYSIS

In response to complaints of Pavillion residents about their well water, the EPA undertook a drilling of two monitoring wells beginning in 2009. The wells were drilled to levels below those of residents’ wells but above the level of natural gas drilling activity.

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The EPA reported its findings in a December 2011 draft report⁴ and concluded that the best explanation for the chemicals detected in the two monitoring wells near Pavillion was hydraulic fracturing in the area, stating, “The explanation best fitting the data for the deep monitoring wells is that constituents associated with hydraulic fracturing have been released into the Wind River drinking water aquifer at depths above the current production zone.”⁵

In April/May of this year, the USGS tested the two monitoring wells that the EPA had drilled to determine whether some of the fracking-related chemicals found by the EPA were still present. The USGS designed a data-collection system⁶ to test the two wells in order to “[p]rovide an independent perspective of the quality of groundwater pumped from two USEPA monitoring wells located near Pavillion, Wyoming.” The USGS reported its findings.⁷

Curiously, the Sierra Club did not reference either of these two reports. Instead, it referenced a memorandum summarizing the results of the USGS report, which was prepared by an independent consultant hired by the Sierra Club, Earthworks, and the Natural Resources Defense Council to analyze the USGS data and provide his own conclusions.⁸ The consultant concluded, “The new data does not *disprove* the hypothesis made by the EPA that natural gas drilling activities, including fracking, have contaminated the Wind River aquifer near Pavillion WY.”⁹ Although the consultant’s language is consistent with how statisticians often explain the results of hypothesis testing, converting a finding that a hypothesis cannot be *disproved* into “Fracking Contaminating Groundwater and Poisoning Residents. We are all DOOMED unless fracking is banned” is perhaps a logical leap too far.

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Of the two wells drilled by the EPA, there is agreement that the second well, MW2, was useless because it had too little water to provide representative water samples. As to the first well, MW1, there is disagreement as to what the USGS analysis showed. The consultant, concluding that the evidence for contamination had been strengthened by the USGS, stated: “The organic chemistry at MW01 *has not changed substantially* since the EPA sampled the well; some constituents have increased and some have decreased, as would be expected with organic contaminants discharging from a series of events, the hydraulic fracturing of

natural gas wells.”¹⁰ However, the consultant never defines what “substantially” means. Moreover, of the myriad compounds found in the MW1 sample, the consultant does not specifically identify which would not be present but for hydraulic fracturing. He does identify some compounds, including methane and ethane (natural gas), as naturally occurring and not related to well drilling.

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Furthermore, many of the so-called indicator compounds used in fracturing fluid that were found by the EPA were *not* found by the USGS. And when it drilled the wells, the EPA used black-painted well-casing pipe.¹¹ A problem with such pipe is that paint contains lots of chemicals that can leach into well water.

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MORE OF THE SAME PANIC MONGERING

Sensationalist headlines will always trump scientific nuance. Nuance does not encourage donations to environmental groups, which is why they prefer “The End Is Nigh” headlines. Nor does nuance sell Hollywood movie tickets.

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Shale gas is a crucial US energy resource, and its abundance has reduced electric prices and benefited consumers.¹² With the EPA helping to shut down coal mining and coal-fired generation, natural gas is the only fossil fuel that can meet growth in the demand for electricity and provide the backup for inherently intermittent—and frequently unavailable—wind and solar. If environmentalists succeed in throttling shale gas development with

sensationalism, rather than sound science, energy prices will soar and further damage the US economy.

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No one is suggesting that shale gas development and well drilling should proceed on a “devil-may-care” basis that allows for indiscriminate disposal of drilling waste. But the scientific flaws in the EPA’s Pavillion research should not be allowed to derail an emerging industry. As for Matt Damon, perhaps someone should remind him that the theaters showing his movie use electricity, which may well be generated by shale gas. 

NOTES

1. With apologies to the late Groucho Marx, who sang “Whatever it is, I’m against it” in the 1932 movie *Horse Feathers*.
2. Sierra Club. (2012, October 3). New study supports water contamination due to fracking. Retrieved from <https://www.commondreams.org/newswire/2012/10/03-4>.
3. Dimock was the setting for the 2010 antifracking documentary *Gasland*, which portrayed water from faucets burning because of the natural gas it was contaminated with and attempted to link that contamination to fracking activity by Cabot Oil and Gas Company. EPA testing of residents’ drinking water found no contamination.
4. US EPA. (2011, December 8). Investigation of ground water contamination near Pavillion, Wyoming. EPA 600R-00/000. Retrieved from <http://www.epa.gov/region8/superfund/wy/pavillion/>. The EPA has extended the comment period on this report until January 15, 2013.
5. *Ibid.*, p. 33.
6. Wright, P., & McMahon, P. (2012, September 26). Sampling and analysis plan for the characterization of groundwater quality in two monitoring wells near Pavillion, Wyoming. USGS Open-File Report 2012–1197, p. 1.
7. Wright, P., McMahon, P., Mueller, D., & Clark, M. (2012, September 26). Groundwater-quality and quality-control data for two monitoring wells near Pavillion, Wyoming, April and May 2012. USGS Data Series 718.
8. Myers, T. (2012, September 30). Technical memorandum re: assessment of groundwater sampling results completed by the US Geological Survey (emphasis added). Retrieved from <http://www.sierraclub.org/pressroom/downloads/myers-tech-memo-093012.pdf>.
9. *Ibid.*, p. 5.
10. *Ibid.*, p. 1 (emphasis added).
11. USGS Open-File Report 2012–1197, September 26, 2012, p. 2.
12. For an empirical study of the impacts of shale gas on wholesale electric prices, see Lesser, J. (2012, January). The economic impacts of US shale gas production on Ohio consumers. Report prepared for the Industrial Energy Users of Ohio. Retrieved from <http://continentalecon.com/publications/ceb/2012/ShaleGas2012.pdf>.