

Fears of hydraulic fracturing

Hype over substance?



By Hiroko Shimizu and Pierre Desrochers
For The Drill

TORONTO — As readers of this publication know, horizontal drilling combined with hydraulic fracturing have converted enormous amounts of useless physical substances into valuable resources, a development that took energy pessimists by surprise.

For instance, it was less than a decade ago that Julian Darley, the founder of the Post Carbon Institute, published his tract “High Noon for Natural Gas,” in which he warned of imminent shortages. As had been the case since the beginning of the carbon fuel era, however, human ingenuity would again prove to be the ultimate resource, and we now live in an era of abundant, cheap and clean burning natural gas.

Hydraulic fracturing has in recent times been one of the few bright spots in the U.S. economic picture through the creation of hundreds of thousands of direct jobs, improved competitiveness for U.S.-based industries that consume large amounts of natural gas and significantly reduced energy bills — in some cases more than 10 percent — for households. Unlike the “tax, regulate and de-develop” approach favored by United Nations and other bureaucrats that has failed everywhere to deliver meaningful results, by substituting natural gas to coal, the U.S. economy has significantly reduced its overall greenhouse gas emissions.

In a world where no good deed goes unpunished, however, hydraulic fracturing for gas and oil has been accused by people with no better real-world alternatives of polluting underground

aquifers with fracking fluids, methane — the main component of natural gas — and wastewater from drilling operations. On top of this, some researchers have raised concerns over potentially significant methane leakages from production sites, an issue which is said to be significant as methane has more than 20 times the direct global warming potential of carbon dioxide over a 100-year period.

As with every new technological breakthrough, concerns over hydraulic fracturing have paved the way to doomsayers and pessimists such as filmmaker Josh Fox, whose anti-fracking “Gasland” documentaries have delivered the message that many activists and journalists wanted to hear while instilling fear — “water on fire” — among well-meaning but uninformed people. As with every human venture, fracking is not perfect. But one must separate hype from facts, look at the forest rather than a single tree and acknowledge that people have long been able to set water on fire in parts of the U.S. where natural gas naturally seeped to the surface.

Surface aquifer contamination

The depth of shale gas-bearing formations typically range from 500 feet to 13,500 feet below the surface, far below drinking water aquifers which are typically found at less than 150 feet from the surface. Though fracking operations must often go through these aquifers, the use of casing and cementing pre-

vent the contamination of the surrounding subsurface geological formations.

In the past few years, some cases of water contamination have been claimed (Silt, Colo.; Dimock, Pa.; and Pavillion, Wyo.) and actively publicized by fracking opponents. But so far there is no conclusive evidence of water contamination, a problem which would be obvious if it was significant in light of the more than 80,000 wells drilled across 17 different states since 2005. True, equipment malfunctions and poorly managed operations might sometimes be a reality. But no one suggests that we take all cars off the road when a manufacturer issues a recall. Unlike fracking, cars kill people but most of us understand humanity is much better off with rather than without them. The solution is to make cars more efficient and safer, not to take them off the road until something truly better comes along.

Interestingly, while many environmental activists focus their effort on the almost non-existent risks associated with fracking, they typically ignore potentially more significant problems. For example, poorly run or non-existent municipal sewage operations are a much more significant water pollution problem than fracking fluids can ever be. Pesticides sprayed on fields can also reach water-bearing aquifers. According to the U.S. Geological Survey, between 1992 and 2001, 9.6 percent of stream water in agricultural areas and 6.7 percent in urban areas displayed concentrations of pesticides greater than human-health benchmarks for water. This being said, in most cases the issue is not really problematic for human beings, though it may sometimes be for aquatic life and fish-eating wildlife.

Although not perfect, these operations should not be a high-priority target of people who worry about surface and groundwater contamination.

Methane leakages from production sites

Another highly publicized environmental concern is methane leaking from production sites. True, methane is the second-most-prevalent greenhouse gas emitted from human activities — industry, waste management, agriculture and livestock — in the U.S., but a significant portion of it also comes from natural sources such as wetlands, oceans and lakes.

According to the Environmental Protection Agency, more than 60 percent of total global methane emissions can be traced back to human activities. Of course, this number should be taken

with a pinch of salt. After all, if all the livestock whose presence is attributed to human activities were somehow to disappear, methane-emitting wild animals such as bison, deer, elk, mountain goats, sheep and smaller rodent species would soon take over their ecological niche.

Be that as it may, yearly global methane emissions from all sources are estimated to be about 566 teragrams a year.

In 2013, a University of Texas team surveyed 190 U.S. production sites and calculated that the average leakage rate per year in the country was about .42 percent of gross natural gas production (about 2.3 teragrams). In other words, U.S. methane leakage emissions from fracking operations account for only four-thousandths of 1 percent of global methane emissions, once again hardly a problem that should be prioritized.

By contrast, wild animals — excluding livestock — burp and fart 8-15 teragrams of methane each year — about four to six-and-a-half times higher than emissions from all natural gas production in the U.S. — while termites, millipedes and other arthropods produce about 20 teragrams of methane annually, about nine times higher than the average natural gas leakage in the U.S.

It is also worth mentioning that one estimate even suggests that termites and arthropods could produce up to 100 teragrams of methane per year.

Nature is not your friend

We live in a curious age when human life expectancy and overall health are better than ever thanks to ever more abundant and affordable energy and scientific advances of all kinds, but in which paradoxically many people view nature as inherently benign and human inventions and products as fundamentally bad.

Like all new technologies, hydraulic fracturing comes with some unknowns and its development warrants caution.

Yet, its obvious benefits should not be ignored in light of grossly exaggerated fears that themselves ignore more pressing problems. Emotions alone are a poor guide in the conduct of human affairs. Why not harvest these blessed resources, and share them with loved ones. Happy Thanksgiving America!

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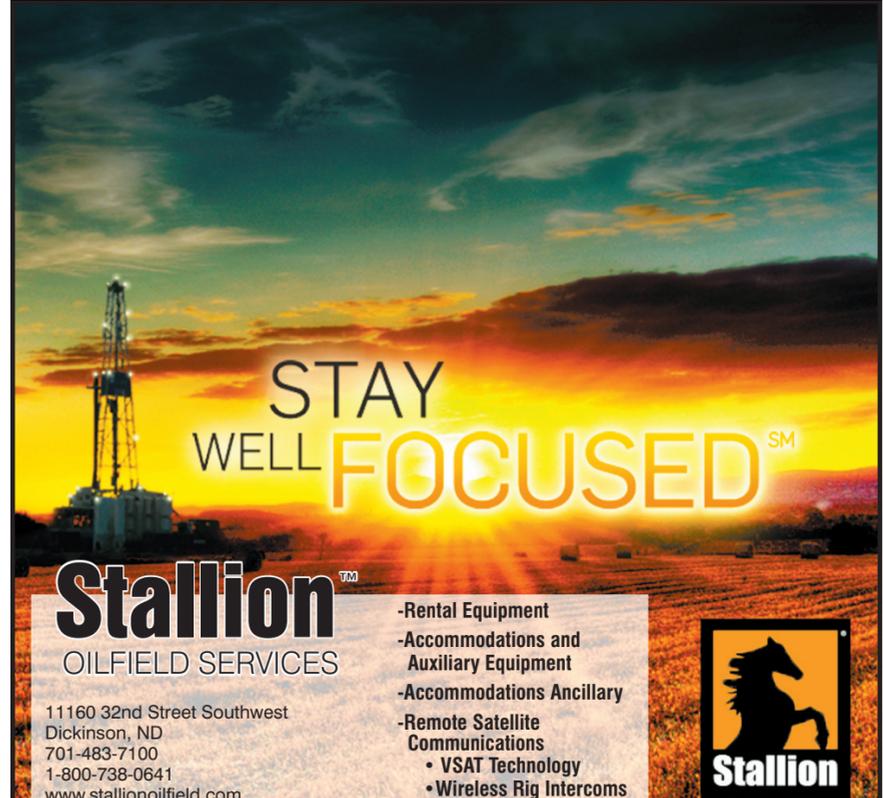



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