

New Brunswick Rules for Shale Gas Industry Inadequate for Protecting Municipal Water Supplies

While the government likes to say that its regulations for the protection of water supplies are industry ‘best practices,’ one must note that ‘best practices’ do not mean ‘safe practices’ or ‘scientifically sound practices.’ **Best practices are defined and determined by the industry itself!** A ‘best practice’ is merely the best that can be done with current technology, and **with a cost the industry is willing or able to afford.** Thus, **‘best practices’ are not a standard for judging health or environmental safety.**

The industry’s own records show that 5 - 7% of all wells leak in their first year. In 5 years, over 30% leak.

Source: Fluid Migration Mechanisms Due To Faulty Well Design And/Or Construction: An Overview And Recent Experiences In The Pennsylvania Marcellus Play, Anthony R. Ingraffea, PH.D. P.E. Oct 2012, Physicians, Scientists & Engineers for Healthy Energy

A good example of how a ‘best practice’ can be an unsafe practice is evident in New Brunswick’s rules for how far away gas wells must be kept from municipal water supplies. New Brunswick claims its rules are strict and are best practices. What does the science say?

New Brunswick’s ‘best practices’ for Protecting Municipal Water Supplies		What Scientists Have Found in Peer-Reviewed Studies on Distances from Gas Wells	
500 meters	Distance from public water supply well to gas well allowed by NB rules	1.0 Kilometers	Distance from gas wells within which independent scientific studies have found highly elevated methane, ethane and other hydrocarbons.
250 meters	Distance from the shoreline of a public reservoir to a gas well the province says is safe	3.0 Kilometers	Distance from gas within which scientists have found levels of arsenic, selenium, strontium and total dissolved solids exceeded the U.S. Environmental Protection Agency’s Drinking Water Maximum Contaminant Limit
250 meters	Distance from public water supply (surface intake) to gas well		

The inescapable conclusion is that **while New Brunswick regulations may be stricter than some other jurisdictions, and they may be industry ‘best practices’, they clearly do not reflect the latest science.**

81% of Water Wells Within a Kilometer of a Gas Well Contaminated by Methane

An active drilling area is defined as within one kilometer from a gas well.

Methane concentrations in drinking water wells of homes **less than one kilometer** from natural gas wells were **six times higher on average**. While most of the wells had some methane, the **water samples taken closest to the gas wells had on average 17 times the levels detected in wells further from active drilling**.

Ethane, another component of natural gas, and other hydrocarbons were detected in 81

percent of water wells near active gas drilling, but in only 9 percent of water wells further away.

Overall, our data suggest that some homeowners living **less than one kilometer** from gas wells have drinking water contaminated with stray gases.

Distance to gas wells was the dominant statistical factor in our analyses for both methane and ethane.”

Source: “Increased stray gas abundance in a subset of drinking water wells near Marcellus shale gas extraction”, Proceedings of the National Academy of Sciences Robert B. Jackson, Avner Vengosh, Thomas H. Darrah, Nathaniel R. Warner, Adrian Down, Robert J. Poreda,, Stephen G. Osborn, Kaiguang Zhao, and Jonathan D. Karr

The Experience of North Texas

“We present an assessment of private well water quality in aquifers overlying **the Barnett Shale formation of North Texas**. We evaluated **samples from 100 private drinking water wells** using analytical chemistry techniques.

Analyses revealed that arsenic, selenium, strontium and total dissolved solids (TDS) **exceeded the Environmental Protection Agency’s Drinking Water Maximum Contaminant Limit (MCL)** in some samples from private **water wells located within 3 kilometers of active natural gas wells**.

Methanol and ethanol were also detected in 29% of samples. Samples exceeding MCL levels were randomly distributed within areas of active natural gas extraction.

Source: “An Evaluation of Water Quality in Private Drinking Water Wells Near Natural Gas Extraction Sites in the Barnett Shale Formation,” Environmental Science and Technology, Brian E. Fontenot, Laura R. Hunt, Zacariah L. Hildenbrand, Doug Carlton Jr., Hyppolite Oka, Jayme L. Walton, Dan Hopkins, Alexandra Osorio, Bryan Bjorndal, Qinhong H. Hu,

