

Scientists Report Increased Methane in Water Wells Near Marcellus Shale Gas Extraction

By Dennis R. Luna, P.E., J.D.

A recent [study](#) prepared by scientists affiliated with Duke University, the University of Rochester, and Cal Poly Pomona titled “Increased Stray Gas Abundance in a Subset of Drinking Water Wells Near Marcellus Shale Gas Extraction” was published in the *Proceedings of the National Academy of Sciences* last month.

This study did find higher methane and ethane concentrations in water wells less than one kilometer from the shale gas wells. However, it corroborated the researchers’ prior peer-reviewed studies showing that there is no evidence of increased concentrations of salts, metals, or radioactivity in drinking water wells accompanying shale gas extraction in the Marcellus region.

Researchers explored various possible causes for this increased concentration of gases in the water wells within the one kilometer range. Importantly, they dismissed the possibility that fluids used in the fracking process were contaminants, because none of these chemicals were found in the 141 water wells tested.

Further, the study explored whether fracking activity was creating fractures in the rock layers above the shale wells and that these fractures might be allowing gases to percolate up to water wells. The researchers concluded that this was not the case. Because of the tremendous pressure at depths where fracking occurs, they concluded, any escaping gases would redissolve long before migrating upwards to the surface.

The study also investigated whether some of the drilled shale wells were intersecting older abandoned gas wells and thus causing gases to escape to the surface and affect the water table. The researchers dismissed this theory of contamination, since the Marcellus region has only experienced minimal drilling in the past, dramatically reducing the likelihood of intersecting an abandoned well.

In fact the study found that the contaminant gases were consistent with those found at the surface or “shallow crust” either by natural process or because of faulty steel casings or imperfections in the cement sealing of the annular space of the production well.

Thus the study provides an encouraging finding for the industry as to the cause of gas contaminants in close range water wells: surface leaks caused by faulty casings and inadequate sealing are both preventable and repairable.

If contamination of water wells is being caused by sub-par cementing or casing, that means the problem can be reduced or eliminated by constructing and maintaining oil and gas wells to the highest industry standards.

Dennis R. Luna, Esq., is the Editor In Chief of the California Oil and Gas Report and Managing Partner of Luna & Glushon. He is considered one of the top energy and real estate attorneys in California. Dennis is a graduate of Harvard Law School and a licensed Professional Engineer. He holds a Master of Science in Petroleum Engineering from the School of Petroleum Engineering at the University of Southern California, where he also earned a Bachelor of Science in Petroleum Engineering and a Master of Business Administration.