Fracking Contamination

Riojas, JoLynn
Garcia, Roger

Based on research done last year, it was decided that an experiment would be completed to observe the contamination that occurs during hydraulic fracturuing. In an experiment done in 2013, it was observed that contamination does occur within aquifers, and substances within fracking fluid seep into the drinking water. From these results and further research, a new scientific question was created to have a more exact analysis of the contamination within aquifers, and to compare the extent of contamination to the CDC's chemical exposure limit. Using isopropanol and methanol, two fracking fluids were created with each chemical. A more advanced geological model of the Eagle Ford Shale layers were created, and an improved hydraulic fracturing mechanism was created. The aquifer water was extracted following a completion of the hydraulic fracturing process, and was tested. The steps were repeated for six trials with each chemical. The data showed that the average amount of contamination from both methanol and isopropanol exceeded the exposure limits provided by the CDC. The average methanol contamination level was 396 PPM, exceeding the limit of 200 PPM. The average isopropanol level was 442 PPM, exceeding the limit of 400 PPM. It was concluded that the amount of contamination that occurs within aquifers following hydraulic fracturing surpasses the safe limit for human exposure. The results suggested that the amount of force used is strong enough to create openings in the rock layers, allowing chemicals in the fracking fluid to seep into the water.

Awards Won: