## Nathaniel Hansen

## Ban all fracking.

Fracking pollutes groundwater, destroying the quality of aquifers for generations to come. The chemicals in fracking fluids will migrate drinking wateraquifers and to the surface -it is not a question of "if", but "when".9Considering groundwater flow, time, and the corrosive downhole environment created by gas extraction processes, including the lack of durability of the cement sealant and steel well casings, aquifers and surface waters are not sufficiently isolated from the toxic fluids and deep geology pollutants that are distributed by drilling and fracking.10Aquifers could be impacted quickly, such as when there is a faulty cement seal or casing during construction, or over time. But it is certain that the life of the cement and/or steel (usually 80 to 100 years or less) is less than the life of the aquifer -so even if there is no evidence in the near term, the eventual pollution likely occur in less than a century11-ruining water sources for the generations that will follow. The potential for fracking fluids move from the production zone of a gas well to water resources"cannot be engineered out of the process(Gassiat et al. 2013). In other words, the process of injecting fluids into and fracturing the shale causes the potential pollution problem."12Contaminated fluids from the fracking process can move from the deep shale to water resources through various pathways including fractures and natural vertical flow, in thousands of vears or in less than ten years, polluting groundwater.