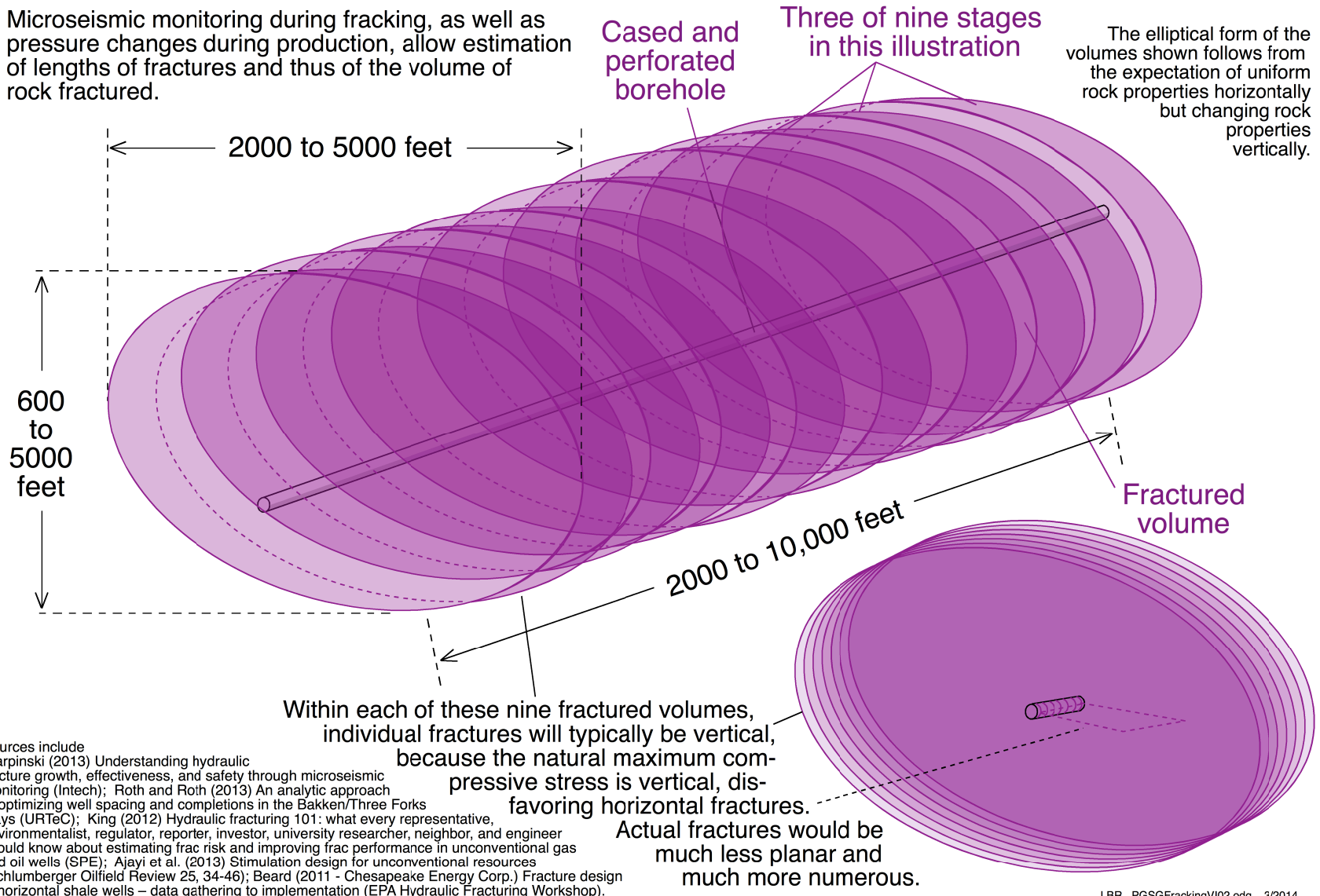


Unconventional petroleum exploitation VI: the fractured volume of rock

Microseismic monitoring during fracking, as well as pressure changes during production, allow estimation of lengths of fractures and thus of the volume of rock fractured.



Sources include Warpinski (2013) Understanding hydraulic fracture growth, effectiveness, and safety through microseismic monitoring (Intech); Roth and Roth (2013) An analytic approach to optimizing well spacing and completions in the Bakken/Three Forks plays (URTeC); King (2012) Hydraulic fracturing 101: what every representative, environmentalist, regulator, reporter, investor, university researcher, neighbor, and engineer should know about estimating frac risk and improving frac performance in unconventional gas and oil wells (SPE); Ajayi et al. (2013) Stimulation design for unconventional resources (Schlumberger Oilfield Review 25, 34-46); Beard (2011 - Chesapeake Energy Corp.) Fracture design in horizontal shale wells – data gathering to implementation (EPA Hydraulic Fracturing Workshop).