

Natural Fracture Control of Hydraulic Stimulations in the Carthage Cotton Valley Gas Field

James Rutledge¹ (1) Los Alamos National Lab, Los Alamos, NM

We have improved the location precision, determined focal mechanism and computed the moment release of microearthquakes induced during a series of hydraulic fracture completions within the Cotton Valley formation of East Texas. Conventional gel-proppant treatments and treatments using treated water and very low proppant concentrations (waterfracs) were monitored. Waterfracs have been shown to be just as effective as the conventional gel-proppant treatments in Cotton Valley reservoirs, but at greatly reduced cost. Comparison of the seismicity induced by the two treatment types show similar distributions of event locations, focal mechanisms and moment release for common depth intervals. We interpret the induced seismicity to be primarily controlled by the natural fracture geometry and independent of treatment design.