

Whatever Happened to Pump Stroke Optimization?

“Pump Stroke Optimization” or PSO was introduced years ago at the 2015 ALRDC Beam Pumping Workshop as a method to reduce pump slippage while increasing pump fillage for rod pumped wells. PSO can be performed on VFD equipped wells that no longer need to pump at maximum speed to remove available well fluids, and is done by preferentially slowing the pumping speed on the downstroke with minimal upstroke speed change.

The original 2015 presentation included data from two Eagle Ford pilot test wells, and the results of a successful four well Bakken pilot was presented at the 2016 ALRDC Beam Pumping Workshop. Results of a 20 well Eagle Ford expanded pilot test were presented at the 2016 Texas Tech Short Course and in SPE 181228 at the 2016 SPE Artificial Lift Conference in Houston.

The timing of PSO’s introduction to industry was poor as oil price just dropped from \$120 to \$55 a barrel, and the practice of preferentially slowing the downstroke represented a major change to rod pumping. Design programs were not setup for it, many unknowns regarding impact to rotating equipment existed, and implementation was not an easy task, all factors that often make acceptance of innovative ideas difficult.

This presentation reviews the original theory behind PSO as well as examples of how some operators are currently practicing PSO. Of key interest is that PSO was never patented and is free to the industry to utilize as they see fit. Service companies providing RPC’s are also free to incorporate PSO theory into their new products should they desire.