

Successfully Pumping the Curve with Thermoplastic Liners

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As shale wells are intentionally drilled deviated or horizontal to reach deeper and varied formations, the resulting wellbore can contain curves in the well trajectory with inclinations greater than 90 degrees. This phenomenon can make lifting fluids using rod pumps problematic due to the extreme deviation and forces the operator to compromise production for the safety of pumping the well from the vertical section above the curve. In an effort to increase production and reduce gas and slug flow, operators have attempted to pump the curve with varying levels of success. Thermoplastic liners, which are mechanically bonded to new or existing tubing, significantly increase run time by preventing rod/pump on tubing contact. Thermoplastic liners also remove the need for rod guides and protect the tubing from corrosive reservoir fluids, therefore improving corrosion related failures. Finally, thermoplastic reduce friction forces by half compared to bare steel and by two thirds compared to rod guides, thus decreasing operational expenses. In this presentation, results from a case study where thermoplastic liner was installed on five high failure rate wells show that pumping the curve is a economic and feasible option for operator.