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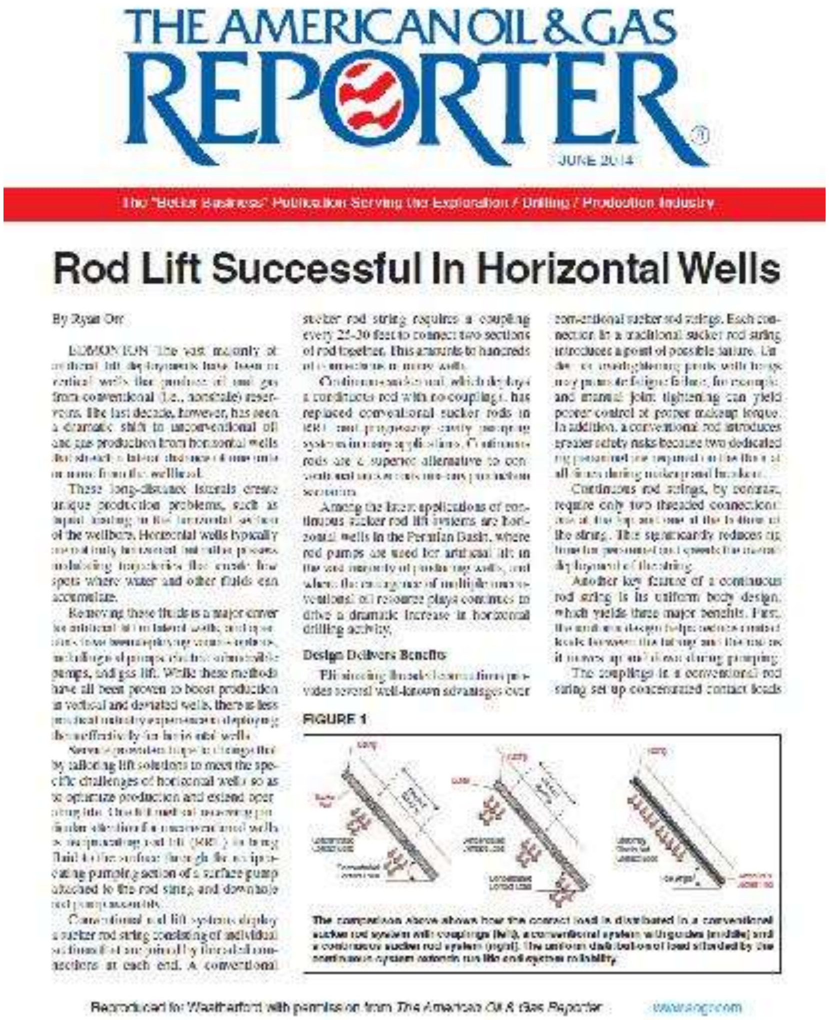

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Rod Lift Successful In Horizontal Wells

By Ryan Orr

EDMONTON–The vast majority of [illegible] lift deployments have been in vertical wells that produce oil and gas from conventional (i.e., nonshale) reservoirs. The last decade, however, has seen a dramatic shift to unconventional oil and gas production from horizontal wells that stretch a lateral distance of one mile or more from the wellhead.

These long-distance laterals create unique production problems, such as [illegible] in the horizontal section of the wellbore. Horizontal wells typically [illegible] trajectories that create low spots where water and other fluids can accumulate.

Removing these fluids is a major driver [illegible] pumps, and gas lift. While these methods have all been proven to boost production in vertical and deviated wells, there is less [illegible]

[illegible] by tailoring lift solutions to meet the specific challenges of horizontal wells so as to optimize production and extend oper[illegible] fluid to the surface through the reciprocating pumping action of a surface pump attached to the rod string and downhole rod pump assembly.

Conventional rod lift systems deploy a sucker rod string consisting of individual [illegible] connections at each end. A conventional sucker rod string requires a coupling every 25-30 feet to connect two sections of rod together. This amounts to hundreds of [illegible]

[illegible] a continuous rod with no couplings, has replaced conventional sucker rods in [illegible] systems in many applications. Continuous rods are a superior alternative to con[illegible]

Among the latest applications of continuous sucker rod lift systems are horizontal wells in the Permian Basin, where rod pumps are used for artificial lift in the vast majority of producing wells, and where the [illegible] of multiple unconventional oil resource plays continues to drive a dramatic increase in horizontal drilling activity.

Design Delivers Benefits

[illegible] provides several well-known advantages over conventional sucker rod strings. Each connection in a traditional sucker rod string introduces a point of possible failure. [illegible] and manual joint tightening can yield poorer control of proper makeup torque. In addition, a conventional rod introduces greater safety risks because two dedicated [illegible]

Continuous rod strings, by contrast, require only two threaded connections: [illegible] the string. This significantly reduces [illegible]

Another key feature of a continuous rod string is its uniform body design, which yields three major benefits. First, [illegible] it moves up and down during pumping.

The couplings in a conventional rod string set up concentrated contact loads

FIGURE 1

The comparison above shows how the contact load is distributed in a conventional sucker rod system with couplings (left), a conventional system with guides (middle) and a continuous sucker rod system (right). The uniform distribution of load afforded by the continuous system extends run life and system reliability.