

# HEAL System Increases Production More Than 75% from 25 Montney Shale Wells

Enhanced sucker rod pumping efficiency in gassy environment

Well depths, high initial decline rates, and high GOR challenged the design and operation of efficient rod pumping systems in Canada's Montney unconventional play. The HEAL System™ minimized slug flow and gas interference, maximized pump fillage, and increased drawdown in 25 wells, resulting in an average incremental production of 18,400 BOE per well in the 12 months following installation of the system.

## Operator wanted to maximize production from 25 wells

In the Montney shale play, production varies from gassy oil in the shallower parts, through wet gas into dry gas. Many wells in the oil and wet gas window require artificial lift after natural flow. An operator wanted to maximize output from 25 wells, which had the following characteristics:

- TVD: 4,760–10,140 ft [1,450–3,090 m]
- Initial oil production: 6–440 bbl/d [1–70 m³/d]
- GOR: 1,122–40,400 ft³/bbl [200–7,200 m³/m³]

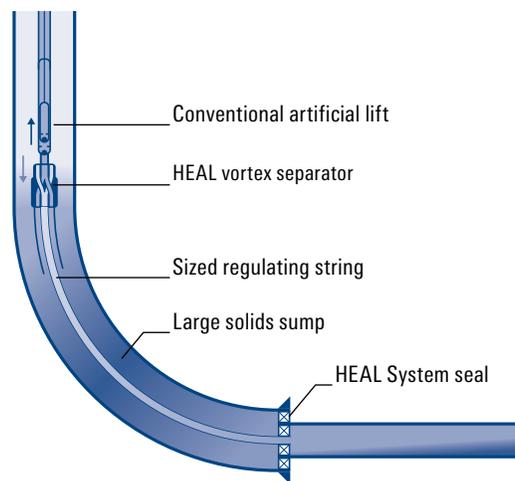
Rod pumps were the artificial lift system of choice, but the well conditions made it difficult to design and operate an efficient system.

## What Schlumberger recommended

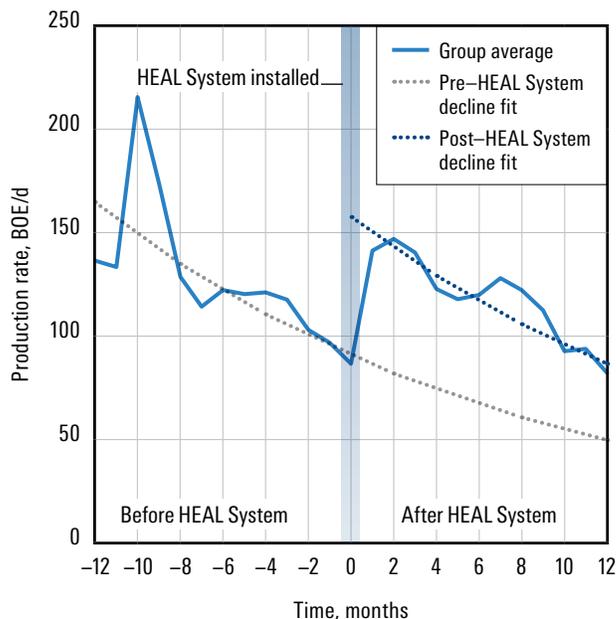
The horizontal enhanced artificial lift system—the HEAL System—guides production from the horizontal section into a sized regulating string (SRS) in the build section. Production flows up the SRS, where it is conditioned into a stabilized multiphase state, lowering fluid density, lifting liquids, and mitigating slugs. The conditioned flow is delivered to a vortex separator, which separates gas and solids from the liquid. The gas rises through the annulus and conditioned liquids are drawn up the vortex separator and delivered to the pump located in the vertical section. Extremely efficient downhole separation and consistent flows minimize gas interference and gas locking to maximize pump fillage; the system also maintains a very low bottomhole pressure, enhancing drawdown to increase production. As a result of these benefits, smaller pumping equipment can efficiently achieve higher production rates, reducing unit lifting costs.

## Production rate increased in excess of 75%

The HEAL System increased long-term (>12 months) production by more than 75% in the 25 wells, compared with the previous production decline trend. Average incremental production was 18,400 BOE per well in the 12 months after the system was installed. As a result, the operator recovered the cost of each HEAL System installation in just 2 to 4 months.



The HEAL System enhanced rod pumping efficiency by minimizing slug flow and gas interference while maintaining a very low bottomhole pressure.



Production rate from the 25 wells increased substantially.

