

## WHAT IF YOU COULD REDUCE UPFRONT CAPEX BY GIVING THE RESERVOIR A HELPING HAND?

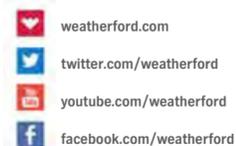
The longer you can sustain high initial flow rates by taking advantage of natural reservoir energy, the better. And Weatherford surface jet pumps help you do exactly that. When reservoir pressure is still strong enough to contribute to production—but it needs a little help to overcome backpressure, enhance the flow rate, and meet your production goals—Weatherford surface jet pumps deliver. Better still, surface jet pumps connect directly to the wellhead and don't require a workover rig. This means you're able to extend the production capabilities of natural reservoir pressure while delaying the costly intervention that's required to install downhole lift components.

With no moving parts, the Weatherford surface jet pump delivers cost-effective, rigless production enhancement for a variety of applications:

- Overcoming high flowline pressure to enhance natural well pressure and restore production
- Replacing traditional multiphase surface pumps to reduce backpressure at the wellhead
- Wellbore cleanup after completion
- Deliquifying gas wells
- Producing heavy, viscous, or corrosive liquids
- Delaying CAPEX by extending early-stage production
- Reducing OPEX with rigless installation and servicing
- Producing CO<sub>2</sub> and natural-gas wells



Find out what Weatherford has to offer. To learn more about how Weatherford surface jet pumps can enhance natural well pressure and restore production in wells with high flowline backpressure, contact your local Weatherford representative. For more information about our full breadth and depth of offerings, visit [weatherford.com](http://weatherford.com).



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ARTIFICIAL-LIFT SYSTEMS

## SURFACE JET PUMP

Restoring and boosting production  
in high-backpressure wells without  
expensive workovers



DRILLING & FORMATION EVALUATION  
WELL CONSTRUCTION  
COMPLETION & STIMULATION  
PRODUCTION

  
Weatherford®

Reduce the effects of high flowline backpressure and enhance early production

# WITH NO NEED FOR A WORKOVER RIG

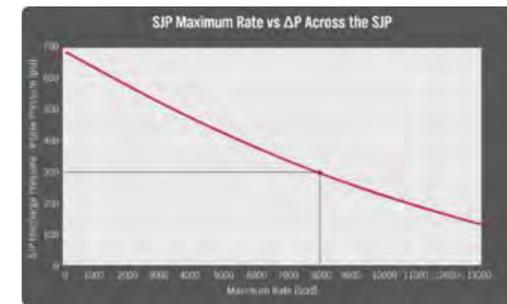


To reduce early production costs and improve recovery efficiency, it pays to keep your wells flowing longer and stronger with natural reservoir pressure. But when the reservoir pressure has been depleted to the point that high flowline backpressure slows or entirely stops production, it's time to take action.

In many cases, installing a surface pump near the wellhead is an effective, minimally intrusive way to reduce backpressure at the wellhead and to restore and increase production. Traditional multiphase pumps, however, have disadvantages. On top of their high cost, they aren't tolerant of produced gas and solids, and this can lead to premature pump damage and unreliable performance. Surface jet pumps, on the other hand, rise to the challenge—even in the gassiest, grittiest, most challenging oil wells.

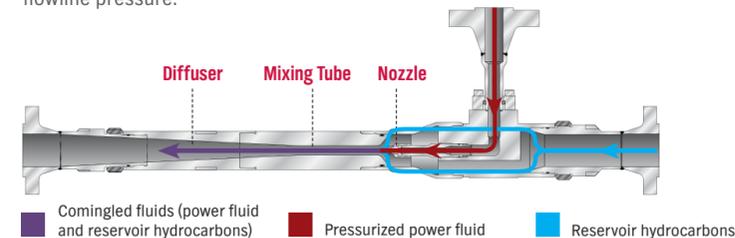
## FINE-TUNED PERFORMANCE. OPTIMIZED PRODUCTION.

Based on your production goals and the unique characteristics of your well, we will design and adjust your surface jet-pump system to effectively achieve the projected flow rate. Using detailed calculations to create a performance curve similar to the one shown below, we can determine the proper pressure differential ( $\Delta P$ ) needed to reduce wellhead backpressure, overcome flowline backpressure, and achieve the projected flow rate. For example, the 8,000-B/D flow rate intersects with the curve at a  $\Delta P$  just under 300 psig. The  $\Delta P$  is determined by subtracting the intake pressure at the wellhead from the discharge pressure at the flowline.

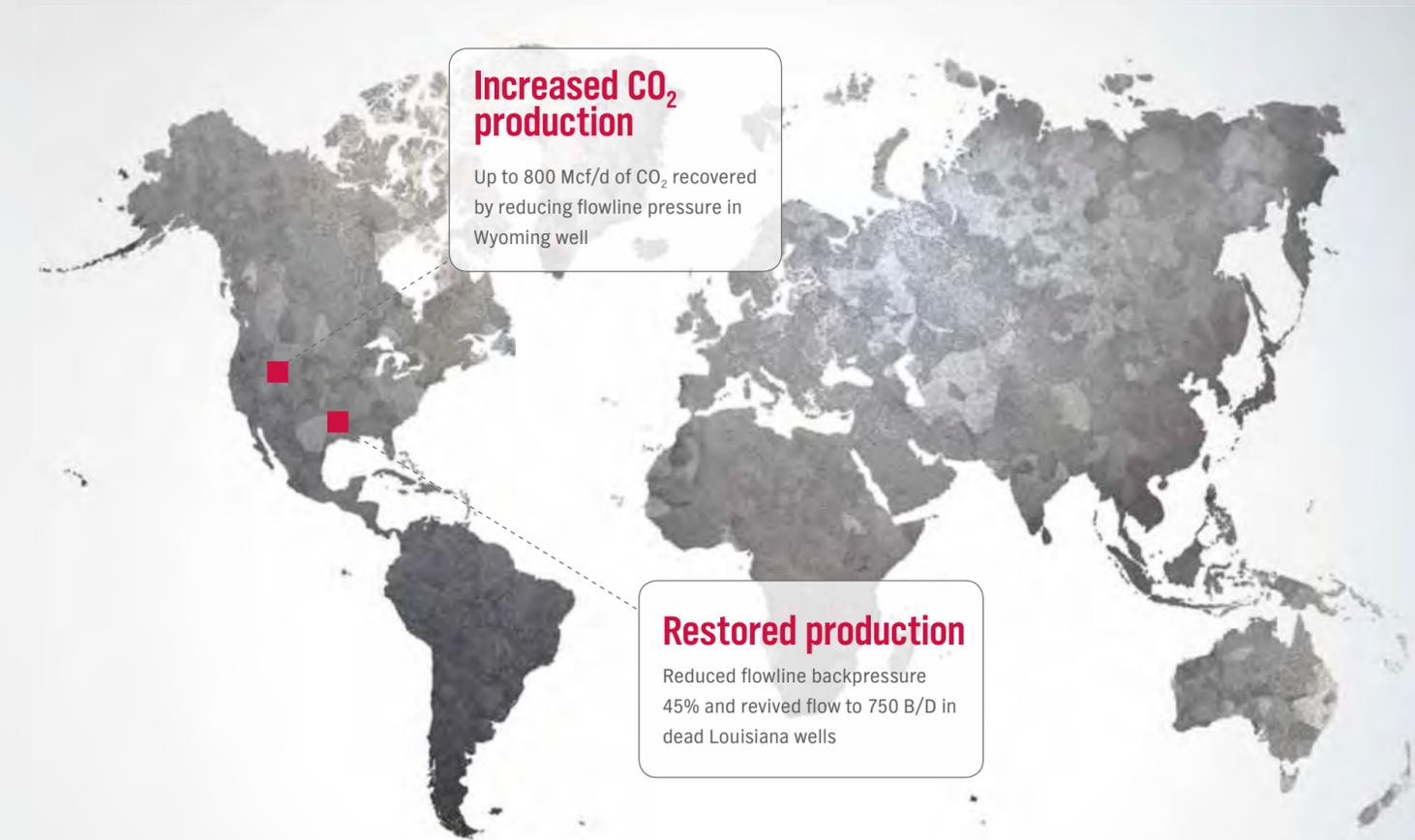


### How surface jet pumps work

The intake of the surface jet pump connects to the wellhead production string, and the discharge end of the pump connects to the flowline. To initiate or enhance production flow, pressurized power fluid enters the nozzle inside the surface jet pump. As the power fluid flows through the pump nozzle, the Venturi effect decreases the pressure at the inlet of the pump throat to a point lower than the wellhead pressure. This enables the natural reservoir energy to move well fluids through the pump intake and then into the throat, where the well fluids combine with the power fluid. The mixture then progresses to the diffuser of the surface jet pump, which creates a discharge pressure high enough to overcome the flowline pressure.



## REAL RESULTS



**Increased CO<sub>2</sub> production**  
Up to 800 Mcf/d of CO<sub>2</sub> recovered by reducing flowline pressure in Wyoming well

**Restored production**  
Reduced flowline backpressure 45% and revived flow to 750 B/D in dead Louisiana wells

### Lift smarter.™

Weatherford surface jet pumps represent only a fraction of our production solutions. With our unparalleled experience and an unmatched breadth and depth of solutions for more forms of artificial lift than any other provider, we can optimize production in any well. Our customer service centers are conveniently located in every major oil-producing area of the world to address your needs efficiently wherever you operate.