

Integrated Split Stream Operations

APPLICATIONS

- Hydraulic fracturing operations
- Simultaneous pressure pumping for both slurries and water

ADVANTAGES

- Reduces wear on treating iron
- Reduces wear on major pump components including fluid ends
- Enables more-predictable, streamlined maintenance
- Enables clear identification of clean and dirty lines and flange orientation for postjob analysis
- Prolongs fluid end consumables life by keeping pumps clean

Integrated split stream operations were developed by Schlumberger in the late 2000s in North America to optimize pumping of slickwater and low-viscosity treatments by splitting fracturing fluid into clean water and slurry streams.

The patented technique of integrated split stream operations has been used to complete more than 100,000 Schlumberger frac stages and counting.

Split stream operations entail providing a clean stream of fluid to pump into the wellbore while simultaneously using separate pumps to pump slurries.

This keeps the pumps dedicated to clean fluid free from the risk of wear and sand erosion inherent to pumping various fracturing treatments.

Extending the life of pumps

Schlumberger integrated split stream operations address multiple issues that occur in the hydraulic fracturing market to ultimately prolong the life of equipment:

- improved pump reliability and efficiency
- reduction of service quality issues and loss of pumps during the treatment
- minimized iron exposure to highly erosive proppant slurries
- lower maintenance costs with fewer fluid end parts to replace.

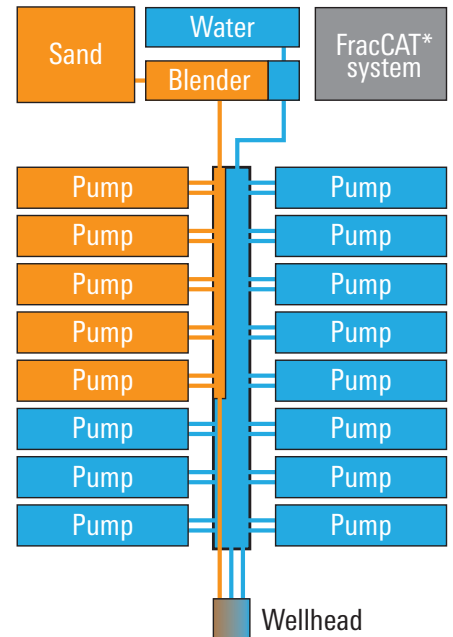


Diagram of integrated split stream operations. Pumps on the left pump a mix of slurry from the blender while the remaining pumps are assigned to pumping water.



Integrated split stream operations are used to pump water and slurry simultaneously for increased operational efficiency and reliability.