

Enerplus Increases Effective Pumping Time per Day by 20% During Zipper Frac Operations Across 42 Wells

Automated digital control of valves on frac trees and manifold reduces downtime, enhances safety, and lowers environmental impact

ValveCommander* automated control and advisory platform replaced time-consuming manual valve operation and its inherent risks with a streamlined digital solution that expedited first oil and did not require personnel in the red zone.

Conventional techniques for valve operation during zipper fracs were high risk

Enerplus Corporation uses the zipper frac technique for efficiency on its well pads in North Dakota's Bakken Shale. Standard workflows for these operations require wireline and fracturing crews to constantly alternate between wells, isolating a well and rigging up wireline or opening a well to begin pumping fluids downhole.

The frac fluid delivery system—including all the isolation, zipper, and frac tree valves—facilitates frac fluid flow and movement of wireline toolstrings into and out of the wells, but the valves must be opened and closed accurately and in proper sequence. All the wells are in fluid communication with each other via the zipper manifold, making valve operations risky and increasing the potential for costly NPT incidents, such as unintentionally cutting wireline, shutting in on a frac stage, or exposing the environment and crew to frac fluids at high rates and pressures.

Cross-checks by multiple stakeholders proved inefficient

To mitigate risk, Cameron was required to send two technicians per 12-h shift, and the Enerplus completions manager, frac ground supervisor, and wireline engineer all had to engage and agree on the procedures before any valve was operated. This practice diverted time and resources away from pumping and still did not provide true visibility on valve positions. With about 1,700 valve operations on a typical job, the mandated process could generate over 5 miles of foot traffic per day and consume 20–30 hours by the end of the zipper frac job on a single pad. Enerplus wanted to further reduce risk, expedite operations, and minimize presence of personnel in the red zone.

“The implementation of ValveCommander platform has enhanced our operational safety by eliminating all contractors around the highest-risk areas on a frac site. We are working safer and improving our efficiencies.”

Brian Engebretson, Team Lead, Completions Operations, Enerplus

Automated digital solution provided an alternative

Field-proven and highly reliable ValveCommander automated control and advisory platform streamlines frac tree and manifold valve operations. Operators can digitally control frac valves with the click of a button from outside the red zone and monitor valve positions in real time throughout the operation. State-of-the-art edge control and automation technology and digital interlocks embedded in the software virtually eliminate the risk and time associated with manual valve operations. Additional instrumentation detects whether the wireline toolstring has safely cleared the frac tree valves, hence avoiding cut wireline. ValveCommander platform also includes a software advisor to ensure that the workflow is executed according to the job plan.

Enerplus significantly improved hydraulic fracturing economics and safety

Deploying the ValveCommander platform helped Enerplus increase effective pumping time per day by 20%, achieving first oil faster while enhancing operational safety. The number of well swaps with transition times less than 1 minute improved by 60%, and valve operation did not necessitate any personnel in the red zone. There were no instances of cut wireline across the 6-pad (42-well) program, and hydraulic power unit utilization decreased 33%, lowering diesel consumption and CO₂ emissions.



ValveCommander platform increased efficiency and minimized risk by enabling remote access and digital control of frac valve positions.