

Case study: Ecuador

HPump horizontal surface pumping system saved customer \$70,000 USD and increased injection capacity by 50%

A customer in Ecuador contacted Baker Hughes for an upgrade to its existing horizontal pump system, with the goal of increasing pressure and flow capabilities without exceeding the operational capabilities of the installed equipment. The customer chose Baker Hughes as the provider because of its technically sound, well thought-out horizontal surface pump designs. The **HPump™ horizontal surface pumping system** combines a multistage centrifugal pump, a thrust chamber, and an efficient electrical motor in a single skid. Knowing the customer wanted to reuse existing parts to reduce additional expenses, Baker Hughes engineers successfully designed a drop-in retrofit option. The HPump centrifugal pumps were installed to the skids of a major competitor seamlessly and with minimal extra cost.

The existing competitor skid underwent extensive modifications to be able to accept the Baker Hughes HPump pumps. Extensions, tolerancing, and componentry were all custom-designed to offer the customer a turnkey solution for its injection pumps. The Baker Hughes engineering team fine-tuned the hydraulic and electrical systems on-site to maximize total system efficiency. Electrical equipment, such as the motor, thrust chamber, and variable speed drive (VSD), were all

reused. Since the whole system did not need to be replaced, the customer saw savings through decreased downtime and maximized performance.

Three units in parallel operation were retrofitted with HPump centrifugal pumps. The customer's expectations were exceeded as the newly upgraded system produces 11,500 BOPD (1,828 m³/d) at 2,400 psi (165 bar) – higher production and higher pressure capabilities – compared to the existing system's output of 5,000 BOPD (795 m³/d) at 2,000 psi (138 bar).

The retrofitted solution increased water reinjection by 50% and pressure by 20%. As a result of the Baker Hughes drop-in pump design, the customer saved \$70,000 USD by not having to make investments in key items like motors, thrust chambers, and electro-mechanical infrastructure.

Contact Baker Hughes to discuss the solution to your surface pumping challenges.

Challenges

- Find the best economical and technical option to replace horizontal surface pumps in Ecuador
- Reuse electrical equipment without affecting performance
- Do not exceed the maximum operating capacity of the installed equipment
- Meet and exceed the new flow and pressure requirements
- Deliver satisfactory results in Ecuador for the first time

Results

- Saved customer \$70,000 USD in unneeded facility investment
- Increased water reinjection by 50%
- Increased pressure by 20%